

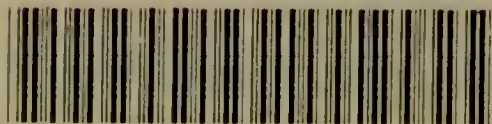
REARING & FEEDING
OF CHILDREN.

THOMAS DUTTON, M.D.



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THE REARING AND FEEDING OF CHILDREN.

THE REARING AND FEEDING OF CHILDREN

(A practical Mother's Guide)

BY

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LONDON:

HENRY KIMPTON,
MEDICAL PUBLISHER
82, HIGH HOLBORN, W.C.

HIRSCHFELD BROS.
BREAM'S BUILDINGS
FETTER LANE, E.C.

1895.

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P R E F A C E

I HAVE been led to publish the various articles contained in this work in book form in response to many requests from mothers in different parts of the world. To make the articles more complete and useful I have thought it desirable to add a short description of Slight Ailments, which includes the more common forms of accidents to which children are liable. I am no advocate, generally speaking, for the amateur doctoring of children, but there are times, when medical aid is not obtainable, that the mother can do a great deal with the help of a little knowledge to ward off disease, and there are also ailments in which

this knowledge will be sufficient to make a cure or else nip a serious disease in the bud.

The only merit I can claim for the articles is that they are original and the outcome of my own practical experience, combined, I sincerely trust, with a sound cognition of medical science and dietetics. Any other merit I will leave to the Reviewers of the work to discover. The trouble they have already expended, and the intelligence they have displayed in reviewing my several works, I have more than once had the pleasure to heartily acknowledge.

THOMAS DUTTON.

7, Portland Place,

LONDON, W.

Nov., 1894.

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FEEDING AND REARING OF CHILDREN.

INTRODUCTORY.

No apology is needed as regards the place the subject of the feeding and rearing of children should occupy in the list of subjects, which it is essential should be known by those who wish to add to a great nation's prosperity. I am indeed pleased to find from the number of communications I have received on the subject, that women take a great interest in it in order, as I take it, that their children when they arrive at maturity may possess both a healthy mind and body, so as to qualify them to fight life's battle successfully, and also they are anxious to avoid, through want of knowledge, injuring their children's health.

I do not exaggerate when I state that the proper feeding and rearing of children plays

a most important part in the growth of the various organs of the body at a period when Nature is shaping her course. For instance, a child born with some hereditary weakness may, if carefully fed, throw it off and compare very favourably with another child who at birth was possessed with a strong constitution but afterwards carelessly fed and reared.

Such being the case I must congratulate mothers in being fully alive to the importance of the subject, as shown by the number of queries addressed to papers devoted to the dietary, and read by thousands of mothers all over the world, who, I am sure, will read these articles with interest and pleasure, in the hope of adding to their knowledge on the subject, for I would not for a moment allow the reader to imagine that I think any mother in the present day would attempt to feed and rear her children without first studying and properly understanding the subject. I, however, must confess that I have witnessed in my capacity as a physician some lamentable cases of ignorance in this respect, even by those from whose intelligence and

position a different state of things might have been expected.

In order that the reader may follow me through the various articles I intend writing on this subject it will be necessary to explain shortly the metabolic transition of the food, or more plainly, the equilibrium between the destruction and the construction of cells and tissues which is continually going on. In children, however, the food must not only be sufficient to replace the cells and tissues that the wear and tear of life is daily destroying, but sufficient also to create new cells in addition, to enable the natural growth of the body to take place.

It is well to remember that nothing is lost in Nature when discussing the subject of feeding in general. The sun's rays carry vital energy to the vegetable cell, be it wheat or barley, in which a certain chemical action takes place with the production of starch, gluten, and gums. This starch we grind down to furnish us with the material for food, and scientifically call it a *carbohydrate*, and which, by the aid of digestion and oxidation is construc-

tively utilised in building up the body, or it is enabled by chemical action to give up again that heat originally derived from the sun. The vital energy derived from the sun in the first place can be stored up in the tissues by aid of properly selected food, in the form of heat, motion, and electricity, ready at a moment's notice to be transferred, and this stored-up energy can be seen daily illustrated in healthy children in their exuberance of spirits when engaged in any exercise where physical force is required; I have seen children so beautifully nourished that their very flesh seems to be full of electricity and life, that if the legs and arms are tied, the body will move of itself, on account of the muscles of the other parts of the body being so full of animation. Again, the same child taken on your knees will easily wriggle out of your hands and get off again, if he wishes, although your strength is so much greater than the child, but the elasticity of his flesh prevents your getting a firm grip. I always look upon this *india-rubber* condition of the flesh in children as a sure sign of

health, and have constantly called the attention of students and nurses to it. It is a sign that the flesh and muscles are stored full of vital energy over and above what is required for their natural growth, and such a state can only be brought about by careful feeding.

Considering, therefore, the part food plays in the growth and maintenance of the body, no amount of time spent in its investigation is thrown away, for it amounts to this, if *Nature* is not furnished with a sufficient quantity of nourishment in the form of food, some part of the body must suffer and become weak, and thus the child will easily fall a prey to infection and disease, hence we find *rickets*, *convulsions*, *paralysis*, *consumption*, and *nervous diseases* very prevalent among children that are badly nourished. What, however, is of more importance, is that a badly-nourished child may sow the seed of hereditary weakness, which will not only prevent his undergoing successfully the severe physical and mental struggle of life, but cause life to be one long day of disappointment; and should he happen

to marry (unfortunately the weak generally do) the offspring will most probably partake of the father's debilitated constitution.

This state of things is by no means always due to the want of food, that is, the *quantity* given, more generally it has to do with the *quality*. Suitable food for a child, say of the age of one year, would nourish bone, flesh, and muscles, if given at proper intervals, far better than twice the quantity of a kind that does not contain the proper elements. Sir Henry Thompson, one of our most learned dietitians, speaks words of wisdom, when he writes:—

‘I fear it must be admitted that the majority of British infants are reared on imperfect milk by weaker, ill-fed mothers. And thus it follows that signs of feeble vitality, of fretful disposition, or of disease, may be observed at a very early age, and apparent symptoms of indigestion, or in the cravings of want, manifested by the “peevish” and sleepless child. In circumstances where there is no want of abundant nutriment, over-feeding or complicated forms of food suitable only for older persons,

produce, for another infant, troubles which are no less grave than those of the former.'

We can, from what has been said on the subject, easily draw the following conclusion, that four great errors are made in the feeding of children, viz.:—

- a.* Under feeding,
- b.* Over feeding,
- c.* Food deficient in the proper elements,
- d.* Food suitable for older persons.

It does not matter which of the above mistakes is made, as regards the injury to the child's constitution, for it will be the same in either case, and with nearly the same symptoms, viz., constipation or diarrhœa, indigestion, pain, convulsions, sleeplessness, peevishness, and debility. When any of these symptoms develop, which are quite unnatural, and should never develop in a healthy child properly fed, the mother generally thinks the child requires some medicine, and from that period the child's stomach is often converted into an *Apothecary's* shop. I regret to say my professional brethren when consulted in such

cases are often to blame, for instead of giving some simple drug to rectify the error in diet, and explaining the cause and remedy for future guidance, they give the medicine without laying any particular stress on the dietary, with the consequence that the medicine does only temporary good, the symptoms coming on again when it is left off.

For an illustration: fancy a mother continually giving her child some soothing syrup for the cure of sleeplessness, when it is caused through some indigestible food lodging in the bowels giving rise to cramp. The foolishness of such a proceeding, I need not comment upon.

ERRORS IN DIETARY.

THE cause of *under feeding* may be a deficient supply, though seldom is this a cause, except among the very poor, unless one happens to get a *fiend* for a nurse, as in a case of a lady I know, who told me that she actually found out that the nurse used to drink daily about half the milk ordered for the children. I believe, if my memory serves me correctly, that a similar case was reported in the daily papers a few months since. The most frequent cause is *imperfect milk*, be it through the mother being weak or ill-fed, or the cow's milk being poor, or the condensed milk being robbed of its proper quantity of fat. These matters will be more thoroughly gone into in a future article, but in the meantime I may remark it shows great negligence on the part of the

mother or medical attendant if inquiries are not carefully made into these sources of nourishment the moment the child shows signs of malnutrition.

Overfeeding I really believe causes more mischief than underfeeding. Strong-lunged children who show early precocity and know that they only have to set up a strain of harmonious music for their mother to at once think they are hungry and give them some food, are the ones who suffer most. They really at last come to a similar state as the drunkard whose thirst for alcohol is never quenched, in a similar way their thirst for milk is never quenched. They grow fat, lazy, and suffer just as much from infantile diseases as the underfed child. It is rather curious why mothers should think that a child requires food every hour of the day when they themselves only partake of it three times a day. They cannot give a thought to the fact that the stomach requires time to digest the food and then rest before it can again perform similar functions. Even when the child is continually sick that does not, in some cases, open the

mother's eyes to the voice of Nature, which is simply calling *too much*. It is quite sufficient to feed a child every few hours during the day and once at night with four to six ounces each time, and if the milk is of a proper quality the temptation to feed the child because it cries should be resisted. The same arguments apply to other foods when the child grows older.

The third cause put down—viz, *food deficient* in the proper elements*, is frequently a serious factor in malnutrition. As a large majority of children are now brought up by hand, this third cause is becoming more frequent every day. It is difficult enough to get milk pure and of a proper quality, but when the child is fed on condensed milk the very element which it should contain—viz., fat—is frequently extracted to the extent of eighty to ninety per cent., and its place filled up by saccharine matter. The child fed on it may be fat, plump and look well nourished, but there is no stamina in such flesh. The number of so-called patent foods manufactured for the benefit of the guileless infant would make one almost suppose

* Vide remarks on Raw Food, page 70.

that a sudden philanthropy for the feeding of children had seized the minds of men, instead of which, I venture to say, if the matter was closely enquired into, it would turn out that all the philanthropy was bestowed on their *pockets*. The foods are often totally unfit for the nourishment of infants and children, and are deficient in those elements which are essential for the formation of flesh and bone. I shall enquire into the constituents of some of these more fully when writing the article on patent foods.

The last cause which Sir Henry Thompson calls '*food suitable for older persons*,' must come at once as an impeachment to many readers, for the majority of mothers are guilty of it, especially those who belong to the working-class. '*What do you give your baby to eat?*' is a question often addressed to such mothers. '*Oh! he eats the same as we do—a little potato and gravy, sucks a bit of meat, and sometimes has a drop of his daddie's beer.*' This is the way thousands of children are brought up. The child of the aristocratic parent is often given cake, sweets, and other

goodies which do just as much harm. All this points to the conclusion that if the child had sufficient intelligence it would cry out *Save me from my friends*, especially if it could only foresee the troubles such dietary would bring in its wake.

These mistakes made by mothers in the feeding of their children can all be easily avoided with, certainly, advantage to the child's health, and comfort to the parents, who, through making one of the four errors, enumerated, pass nights of disturbed sleep on account of the peevishness and restlessness of their infant.

When milk and patent foods are left off, and the child arrives at the age when animal and vegetable foods are required to further develop the bones and muscles, and prepare the body to undergo the strain of life, the same errors are made in the dietary of children, they either are given too little, too much, or food not at all suitable to the requirements of *Nature*. Yet the parents wonder why their children are always ailing, and the services of the family doctor constantly required. If the profession as a whole were to be asked

the principal cause of disease and illness among children, I am sure they would agree with me in saying it is nearly always due to one of the errors in dieting mentioned in the Introductory Article.

The reader must not draw the conclusion from what I have written that I would advise a dietary, the carrying out of which would cause needless bother and worry and make the early life of children miserable, for such is far from my intention. I merely wish to convey as my opinion the education of parents should be brought to bear upon the rearing of their children; then they will soon learn that a certain amount of discipline is essential, because infants, afterwards boys or girls, are not able to discriminate at that early age what is good for them, it is therefore advisable that food which will injure their constitution should be rigorously kept out of sight, in order that no taste may be developed for it. I know a case where a child through hereditary disease, was disallowed sugar from its birth by the medical adviser, who grew up with a dislike to the taste of

sugar. I give this example to show that children will not develop a taste for improper food unless they are educated up to it by the food or drink being continually placed before them. What a morbid and diseased taste for an infant to be continually crying, whenever his father may have some beer before him, until a sip is given to him to satisfy this depraved taste, which must have been forced on the child! Parents may do much by example to prevent these diseased tastes being developed, simply by feeding their children on sound, wholesome food, and not allowing them to sit down to table where food is placed suitable for older people, until they reach an age when they can partake of such dietary without injury. Beer, wine, and spirits, and unsuitable kind of food should be kept out of sight, for, as I have already said, the taste may be educated in the wrong direction like other special senses can be. I will not open that dangerous subject of controversy, viz., the *total question* in these articles, except to say, that children should not be brought up to acquire a taste for

alcohol, which ought to be totally excluded from their dietary unless ordered by a medical man for special reasons.

In concluding the present article I will quote the statistics of the Registrar-General's annual report concerning infantile deaths, viz., that more than *one-fifth* of the whole deaths of the United Kingdom are infants under the age of one year, and that out of every 100,000 children born only 74,000 would be alive at the end of five years. These figures speak for themselves, and show the importance of the subject with which we are dealing, for if we traced the cause of this appalling mortality among children, we should find it due mostly to convulsions, diarrhœa, and consumption, diseases caused by the use of improper foods, and which can be described as preventable, in the fact that they can be prevented if children are carefully nourished and reared.

In order to carry out the feeding and rearing of children properly it is obviously necessary to have a knowledge of the different foods on which children are reared.

NATURE'S FOOD.

No one will question that for the purpose of feeding infants until they attain the age of one year, the food supplied by *Nature*, viz., human milk, is by far the best, as it contains all the elements suited for the proper growth and development of every organ in the body. These elements undergo transition changes more easily and more readily than any other nutriment, however perfect, from a chemical aspect.

We cannot improve upon *Nature*. All the learning and research of ages have not added one iota to the omnipotent intelligence with which Nature feeds and rears all living creatures. Progress has only been made by the chemist and physiologist through studying Nature herself by separating natural food into

its elements and inquiring into their uses and functions. By the knowledge thus obtained, we are now enabled to aid Nature by supplying any of these elements when they happen to be wanting or deficient in any way.

I think myself that among all animals who rear their young by the aid of milk, there is a certain peculiarity in the composition of such milk which is especially suitable for the requirements of the young of its species, and if recourse is had to the milk of one animal in order to feed the offspring of another, there will be some deficiency in the proper nourishment which soon becomes apparent, unless we can supply by artificial means the ingredient that is missing or is deficient.

For example, take human, cow's, and ass's milk, which are in chemical composition more like one another than any other mammal's milk; the following is approximately a correct table of the contents of

	Human	Ass's	Cow's
Casein . .	1.52	1.82	4.48
Butter . .	3.55	2.11	3.13
Sugar of Milk	6.50	6.08	0.60
Salts . .	0.45	0.60	0.34
Water . .	87.98	90.65	87.02

In 100.00 parts.

It will be clearly seen from the above table that there is a large amount of casein (milk albumen) in cow's milk as compared with human milk, on the other hand the latter contains far more sugar than the former. In order, therefore, to properly substitute cow's milk for human milk, a large part of the casein must be extracted or artificially digested, and a quantity of sugar of milk added. This shows that for the proper growth and development of a child and a calf different constituents are required in the milk upon which they are fed; the child requires less casein and more sugar than the calf, and the latter more casein but hardly any sugar. The casein being in too large amount in cow's milk—which makes it so often disagree with the child's stomach—is precipitated into

insoluble *curds* by the action of the gastric juice and thrown up by the child in vomiting. To my mind it is plain (although I do not state it as a correct conclusion), that if a child is continually fed on cow's milk, without its composition being brought to approach the composition of human milk, as explained above, some part of the growth and development of the child is sure to be arrested.

If we again refer to the table above we shall find that ass's milk approaches more nearly the composition of human milk, the only difference being its deficiency in butter (fat), for the casein and sugar of milk are about in the same proportion in each. Ass's milk would therefore seem to be the proper substitute for human milk, when the latter is for some cause or other not obtainable. Unfortunately, ass's milk is difficult to procure in this country, and it is much more expensive, but in some countries the contrary is the case.

In the present day the whim of fashion and general desire to escape the burdens incidental to motherhood have made women of the present

generation substitute artificial food for natural food, although this is by no means the only cause, for the progress of civilisation, the present mode of life, and the struggle that is going on for existence have their effect on a woman's health and render her unfit to rear her children properly without the aid of artificial food. Then, again, woman has entered the field of competition with man in those callings which formerly were allowed by the fair sex to be his by birthright, but which now she disputes. The women who hold these ideas are now a numerous class, and must certainly be taken into consideration, for if they marry they cannot without prejudice to themselves carry out the functions of a mother in addition to their professional or business duties. They therefore relegate their mother's duties to a wet nurse or else rely upon cow's or ass's milk or some artificial food in order to rear their children. I must also mention a large class of mothers who are physically incapable of supplying food to their children, either through ill-health, hereditary weakness, artificial mode

of living, or through poverty, which prevents their obtaining a proper supply of nourishment themselves, which, of course, is essential if the child is to be properly nourished. Altogether this makes a very large class, which will get larger every day if the world continues to make progress in the present direction, which is contrary to natural laws.

It is therefore incumbent upon those who are responsible for the instruction of girls, who will in their turn become mothers, to impress upon them the necessity of maintaining a high standard of health during the period they are suckling their infants, by paying proper attention to their dietary, which should be bland and simple, but of a very nourishing kind. Mental worry ought to be strictly avoided, also physical fatigue, although a proper amount of exercise in the open air adds materially to the supply of milk, particularly if attention is also paid to natural hygienic laws, as laid down in *Domestic Hygiene*.

The results of following out such advice, I am sure, would be duly shown by the children growing up strong and healthy,

without that usual anxiety and worry which is always associated with ill-fed, badly nourished, and carelessly brought up children. I would here suggest that it is much better, even if the mother is too weak entirely to supply the whole of the food to supply some portion of it, instead of bringing the child altogether up by hand. I consider this is an important point, for I have known many mothers dry up their milk, because it was not sufficient for the infant without milk from another source, and on the other hand I have known mothers weaken themselves by supplying more food than their strength was capable of providing. A little careful inquiry into these matters will be the means of preventing one or the other of these mistakes, with advantage to the mother and child. I trust I have made it clear that much can be done to increase the quantity and quality of human milk by a knowledge of the laws of dietetics and hygiene and living up to these laws in a manner that will bestow upon them the blessings of sound and robust health, thus fitting them to undergo successfully the

serious strain that the proper nourishment of an infant must entail.

The next best substitute for the mother's milk, if from any of the before-mentioned reasons it is unavailable, is to procure a wet nurse, if the expense attached to such a luxury for an infant can be borne. It is, however, not so easy in practice to engage a suitable woman, for no end of enquiries should be made into her individual health and hereditary history, in fact it is unwise to engage a wet nurse at all except through the family medical attendant, who alone can form an opinion as to her fitness.

MILK.

THE principal substitute for human milk, in all ages, for infant-feeding, whenever the natural supply has been cut off through any cause, is the milk of other animals, more especially that of the cow, ass, mare, and goat. The milk of the cow being cheaper and more abundant and far easier to procure in most countries makes it more extensively used than the other three.

This is not, as many people believe, on account of its superiority as a food, but simply because it is more easily procurable, for in those countries where cow's milk is not so plentiful as ass's or mare's milk the latter are largely used instead. This is the case in Spain and Russia where ass's milk in the former and mare's milk in

the latter country are used exclusively in the feeding of babies with great advantage to their growth and development. When cow's milk is selected as the food upon which to rear a child, very careful inquiries should be made concerning the source of the milk; for it is well to remember that the cow is a very delicately-constituted animal, and very prone to disease of all kinds particularly those of a tuberculous nature (consumption generally). I give it as my firm belief (although a few scientific men differ from me in this opinion) that milk taken from an animal, suffering from consumption, and continually given to a child, will undoubtedly sow the germs of consumption in the child. In addition to myself the above opinion is accepted by many learned English physicians, and confirmed by a leading German scientist who has made a series of experiments on rabbits by feeding them with milk taken from a tuberculous cow, with the result that all the rabbits soon died of consumption. He has also traced cases of consumption in children who had been brought up upon milk derived from diseased

animals. I believe there is a Commission now sitting which is engaged in investigating this very important subject of such paramount interest to the community at large. Putting aside the contagiousness of tuberculous milk, no one will for a moment question the fact that milk derived from diseased animals must be unwholesome and injurious to children.

The milk as it comes from the cow is often pure and wholesome, and of an excellent quality, yet becomes dangerously contaminated before it reaches the consumer. Like the cow itself, ordinary milk is one of the most delicate substances we have to deal with, and it is most susceptible of contagion, absorbing readily all kinds of poisonous gases, dirt, dust, and living germs, the last finding in it a most congenial soil to flourish and multiply galore. It can be readily understood that dealing with such an easily contaminated substance the greatest care should be exercised in its collection and conveyance to the consumer, especially in hot weather. I shall now give a few of the rules that all milk vendors should observe with the view of supplying a

perfectly pure article. I must say I think London has the least to complain of in the supply of wholesome milk, although it might be much improved.

Nursery milk to be wholesome and pure the following precautions are absolutely necessary:—

- a.* A careful selection of healthy cows of a particular breed.
- b.* Feeding the cows on selected pasturage, to which a few turnips and brewer's grains may be added.
- c.* Drinking water for their use must be abundant, clean, and pure.
- d.* Milk should never be taken from cows which are ill or suffering from inflamed udders. Cows should be milked twice daily.
- e.* The stables or sheds in which they are kept should be well ventilated, drained, and in good sanitary condition.
- f.* Milkmaids should be healthy and their hands thoroughly washed before milking, and the process should be conducted in the cleanliest manner possible.

-
- g. All utensils used should be thoroughly scalded and cleaned with pure water immediately after use.
 - h. The milk after being poured into cans should be covered, sealed, and conveyed without too much shaking.

I am afraid judging from my experience in inspecting dairies and farms that it is a very difficult thing to get milk vendors to attend to all the above requirements. They may attend carefully to some while they are most remiss with regard to others. It is, however, of great importance to parents of all classes that these requirements should be carried out and they should make careful inquiries into the matter before deciding upon a milk vendor for their supply. *

As pure milk is of such vital importance to a baby's health when it is reared upon it, the mother or nurse should further test

* Last July I made a very careful and extensive inspection of Messrs. Welford Sons' (Limited) farm at Willesden and dairy at Elgin Avenue. I found that the hygienic care bestowed upon the collection of the milk is such as I advocate. I was so entirely satisfied with my inspection that I requested the firm to supply me with milk.

the milk to ascertain its quality. For this purpose she must provide herself with a lactometer. When the lactometer is placed into good rich milk the milk should have a specific gravity of 1030 to 1032, anything below 1028 ought to be returned to the milkman. Milk should always have an alkaline reaction. In order to make sure of this place a piece of blue litmus into the milk, and if alkaline the colour of the litmus will remain unchanged, but if the milk is acid it will instantly turn red. It is better not to use milk with an acid reaction for it frequently produces derangements of the bowels and indigestion, but if such milk must be used some lime water or a little bicarbonate of soda should be added.

Before, however, using the milk, I would recommend that it should be boiled or sterilized, the advantage of boiling or sterilizing is as follows: Sterilizing is certainly a more perfect means for rendering milk free from infectious germs than boiling, it is a more complex process but still when once adopted it is easily carried out. The plan is to obtain two white quart

bottles, put into them the fresh cow's milk to which may be added about a third the quantity of pure water, then immerse the bottle up to the neck in a vessel containing water, and boil for half an hour. Cork the bottles immediately, and put them aside in a cool place. The milk will keep sweet for weeks and can be used as required. Messrs. Welford & Sons supply sterilized milk. I need hardly draw attention to the fact that at the present time when we are expecting a visit from cholera no milk, however pure, should be used unless it is boiled or sterilized as a safeguard against that dreaded scourge, which would be sure to play havoc among children if it once got a footing.

In the article on Nature's Food I explained the difference between the composition of cow's milk as compared with human milk and stated that it was the excess of casein (milk albumen) which disagreed with the child on account of the digestive organs not being able to deal with it properly. I also stated that cow's milk is deficient in milk-sugar, contains too little water, and is sometimes acid.

We must therefore by artificial means bring the cow's milk to have the same physical properties as human milk, viz., by,

- a. Reducing or digesting the casein
- b. Adding some milk sugar
- c. Adding about a third more water
- d. Rendering it alkaline by carbonate of soda (10 grs. to a pint) or lime water (two tablespoonfuls to a pint).

The casein can be reduced by boiling as already explained or by adding a small quantity of *diastase*, a ferment obtained from malt which has the power of rendering the casein digestible, but if the child is very weak and delicate a better plan would be to peptonize the milk by aid of Fairchild's *Zymine** a few grains of which will render the thick cheesy curd of half a pint of cow's milk perfectly soluble and thus enable the most weakly stomach to assimilate it.

* Pour a pint of milk into a clean quart bottle, add to it four ounces of warm water ($\frac{1}{4}$ of a pint) and one *Zymine* powder, shake the contents and then place the bottle in a saucepan filled with hot water, leave it for twenty minutes when it will become peptonized, then boil the milk in a saucepan after which it is ready for use.

The reader will have come to the conclusion that to feed and rear a child properly on cow's milk a deal of care and trouble must be expended on the article so as to render it fit and above suspicion for consumption, and it is not at all surprising that infantile diseases are so common when we take into consideration that a large number of children are fed on milk which comes from miscellaneous dairies, placed into a dirty bottle (scientifically speaking), with a little warm water, without the slightest change being made in its composition.

I think this is a good opportunity to remind mothers that the use of unclean bottles and *stale milk* left in the bottle is the cause of much disease and malnutrition among children. It is useless to waste time over the purity of the milk, if the receptacle used is not scrupulously clean. The feeding bottle should have no fittings except a rubber nipple. A pure white thick glass bottle flattened on one side I consider the best form for the purpose, which will easily rest on the child's chest, when lying on its back.

Only sufficient food ought to be put into the bottle for a meal and when the meal is finished the bottle should be scalded and placed upside down to dry, at the same time the nipple must be turned inside out and also scalded. In hot weather it is also advisable to place the bottle for a minute or so into a ten per cent. solution of boracic acid. I am adverse to tubes of all kinds, for they cannot be thoroughly cleaned. It only requires one to have a slight knowledge of hygiene to be aware of what a trifling amount of sour milk or food will upset a child's stomach. I would advise that three or four bottles be purchased at the same time, in order that there may be no excuse for using the same bottle for two successive meals.

We have seen that the composition of ass's milk is nearly the same as human milk and but for the difficulty of getting a regular supply I should strongly recommend it. It requires no addition except a little pure water, which should be brought up to the temperature of human milk. There is a dairyman in the Edgware Road who pays

great attention to this product. He has supplied some of my patients with ass's milk of a very excellent quality and they have been well satisfied with the results. His herd is well selected and carefully fed.

Mare's milk is hardly worth mentioning on account of its expense and the difficulty of procuring it. The horse is a very healthy and clean-feeding animal, and what is more, it will not often drink dirty water, it is altogether more sanitary than the cow, but unfortunately it is far too valuable an animal to be used for the purpose of supplying milk. In Russia, where mare's milk is cheap and abundant, it is largely used. It is imported into this country fermented, and known as *koumiss*, a very valuable food for children and invalids when the digestive functions are out of order. I have seen some remarkable cures effected by patients being able to assimilate *koumiss* when they could not taste any other food without ejecting it. The drawback is its sour taste which many children greatly object to.

Goat's milk is largely used in some places

for feeding children, particularly in Wales and Ireland: in the latter country I have partaken of it myself, although in my case I always diluted it with the water of the country, known as *whiskey*. It is rather rich for children as it contains more fat than either human, cow's, or ass's milk, but the amount of water, casein and sugar of milk is nearly the same as in human milk. The goat is not altogether a sanitary animal, therefore great care should be bestowed upon the feeding and housing when goats are used for the purpose of supplying milk. In many infantile diseases goat's milk, from the large quantity of fat it contains, might be recommended with advantage, but on this subject the family medical attendant is the best person to consult.

We cannot but come to the conclusion that various forms of milk are most valuable in children's dietary, although as already explained they have their disadvantages. I shall, when writing the article on artificial foods, explain the reason why I consider that in some instances it is of great service to feed a child on both milk and artificial food, giving

one, for example, at night and in the morning, and the other during the day. This plan is particularly advantageous in the cases of strong healthy children when ordinary milk does not seem sufficient for their cravings.

CONDENSED MILK.

THERE are so many articles now in daily use which are essential to our comfort, that we cannot understand how our forefathers could possibly have got along without them. I think that condensed milk may reasonably be included among the number. The amount of condensed milk manufactured and sold clearly shows how greatly it is appreciated and used by the community at large, but nowhere, I would venture to say, is this article so highly valued as on board ship. To the voyager and sailor it comes as a boon which makes them reflect on the unhappy times when ships had to put to sea without this very necessary article to one's comfort, and almost essential as an article of food for those who have to take their children with them. In those days patent

foods were hardly known. A small cow or some goats were generally carried to supply the whole ship with milk, and if peradventure anything happened to the unlucky animals, the supply of milk was at once cut off. In the present day a number of boxes containing tins of condensed milk are put on board, representing the milk of many cows condensed, the bulk occupying very little room. The contents of the tins will keep sweet for any length of time if the tins remain sealed, and when opened the milk is ready for immediate use, and provided it is condensed from pure whole milk it is almost equal to pure fresh milk. Parents going long voyages, and having to take their children with them, need have no fear now that the supply of milk will become exhausted.

There are many other uses to which condensed milk may be put, for it is an excellent substitute for fresh milk whenever that article cannot be easily procured, or if the source of the supply is doubtful; in fact, it has many advantages over fresh milk, which I shall shortly explain.

To have always at hand a supply of milk which can be used for every purpose which fresh milk is used must be a great benefit to the poor and to all who cannot get a regular and constant supply of fresh milk.

Unfortunately the great demand for condensed milk has brought into the market a large number of brands, the majority of which are made by dishonest manufacturers who sell anything but the genuine article. There appeared in the *British Medical Journal* last year a warning to the public against the adulteration of condensed milk. It was conclusively proved by a full chemical analysis that many of the brands in the market were robbed of fat (cream) to the extent of 80 to 90 per cent., showing plainly that the contents of the tin were not made from pure whole milk, but from *skimmed* or *separated* milk, the deficiency of fat being made up by adding an extra amount of sugar. I need hardly say that the abstraction of so large an amount of fat and the addition of so much sugar makes the milk quite useless as a food for children; in fact, to feed children solely on

such food would be seriously injurious to their health, and a high mortality among children would follow as a matter of course. I am happy to say that there are honest manufacturers of this useful commodity who would scorn such a despicable way of trading, but undoubtedly these suffer through unscrupulous traders. I have lately examined tins of two well-known brands which I bought at two separate shops in a poor neighbourhood. I found on opening them that the contents were perfectly sweet, the tin inside scrupulously clean, and the amount of fat contained in each sample nearly 12 per cent., showing the milk to be very rich in cream, and made from rich whole milk. I consider, as the result of my examination of these brands that it is easy to obtain a genuine article. I am also pleased to say that some Companies have stringent agreements with all who supply them with milk, with the object of preventing any contamination of the fresh milk, such as to deserve encouragement from all users of condensed milk. It is therefore necessary to carefully avoid spurious brands, and only

use those that are known to be genuine, particularly when condensed milk is used as a substitute for cow's milk to feed children upon.

The advantages of condensed milk as compared with cow's milk, when the former is pure and made only from whole milk, are as follows:—

CONDENSED MILK.

1. A genuine brand is always pure.
2. Uniformity of character is obtained by using a well-known brand.
3. The milk condensed in a large factory is supplied under stringent conditions, such as only large manufacturers can enforce.
4. Condensed milk cannot—unless exposed to the air—absorb impurities.

COW'S MILK.

1. Sometimes difficult to obtain pure.
2. Seldom uniform in character, except when derived from the same cow.
3. Changes in the milk when cows are fed on grass, hay, roots, or brewer's grains.
4. Fresh milk readily absorbs all kinds of impurities.

Many of the objections to cow's milk (as stated in my article on milk), can be got over in places where the supply is abundant and every care is taken to prevent contamination.

At certain periods of the year it is often advisable to leave off cow's milk, particularly if the child becomes subject to diarrhœa, with other signs of malnutrition, plainly showing that the food is too rich for the child's stomach. This period is the time when the grass is undergoing rapid growth, and in years when our climate is not playing extraordinary freaks, as during last summer, it would fall between the middle of May and the end of July.

In most cases I must admit that the large quantity of cane sugar in condensed milk does disagree with children with weak stomachs. I have been told by an expert on this subject that it is impossible to ensure the keeping of the milk for a period, we will say, of six months, unless a fair quantity of cane sugar is added. I have lately examined some condensed milk which has

been in a tin for six months and preserved entirely without sugar. I found it perfectly fresh and in very good condition. I would advise that only unsweetened milk be used for children. The mother can add sugar of milk to sweeten it. Although condensed milk is largely used in the feeding of infants before they attain the age of one year, its use after that period is even more important, for it can be used as a daily article of diet in the preparation of other foods, such as in the making of custard, rice pudding, some most nutritious dishes with Brown and Polson's cornflour, and also with various kinds of stewed fruit.

In concluding this article I would venture to remind mothers that in the feeding of children on any kind of milk, it is very essential to take into consideration the child's age and constitution. It is quite impossible to lay down a hard and fast rule concerning the merits of condensed milk compared with cow's milk, for it often happens that condensed milk agrees with some children much better than fresh milk, and they seem to

thrive much better on it. The better plan is to leave well alone, and whichever seems to suit the child, let him go on with it, particularly if the same brand of condensed milk, or the milk from the same dairy, is procurable.

PATENT FOODS.

THE word 'patent' food is here used because it is the term by which artificial food for the feeding of infants are usually known. In reality there is nothing *patent* about such foods, for a patent food, in the strict sense of the term is a secret food, and must bear a Government patent medicine stamp according to its value, whereas in the case of infants' food, the ingredients are plainly stated on the label and there is nothing secret about them except possibly the art of manufacture. They do not come under the patent medicine regulations and therefore require no stamp. I think artificial foods would be a better term, but for convenience sake I have headed this article 'Patent Foods.' If I were to describe the patent foods manufactured for the guileless infant, I might continue to

write articles on this subject *sine die*, for their name is legion. If mothers only could put faith in the mural advertisements they would have little difficulty in selecting a food that would nourish their children so well as to qualify them for successful competition in a baby show, for that seems to be the object of the mural pictures depicted, judging from the fat and sleek appearance of the infants represented. The manufacturers appear to trade on the erroneous public belief that a fat child is a healthy one, whereas the contrary is certainly a more scientific truth. A child weighing more than the average weight, according to its age and height, is very often a feeble child and prone to infantile diseases. What is required in infants' food are constituents to make bone and muscle, and only sufficient fat to form a delicate elastic cushion to cover them, in order to prevent any injury being done to the structures through blows and falls, and in addition to keep them warm and to prevent cold penetrating into the body.

The great drawback in nearly all the older

patent foods, and a great many now in the market, is that they contain free *starch*, being chiefly made of ground farinaceous food. I would like to impress on all mothers this well-known physiological fact that young babies cannot digest starch, in fact *Nature* has not given them the power to do so. There is no digestive ferment in the saliva of an infant to transform the starch into maltose or grape sugar, and therefore the starch cannot be assimilated by the stomach. Even an adult cannot assimilate starchy food until it has been changed by a ferment in the saliva known as *ptyalin*, into maltose or grape sugar. This ferment is absent in the saliva of newly-born children and is only gradually developed.

Infants' food, if composed of free starch, must only act as an irritant to the stomach and bowels, causing the motions to assume a dull grey colour intermixed with small lumps showing the undigested starch. A child so fed is sure to suffer from malnutrition, spasms, convulsions, diarrhœa or constipation, for you might as well give it small stones, so far as the digestion is concerned, as to give it food

which cannot be broken up by the digestive apparatus. Any mother can detect for herself the presence of free starch in the food by buying a small quantity of *tincture of iodine* at a chemist's and adding a few drops to some of the suspected food, in a test glass. If it becomes *blue* starch is present, such food should not be given to a child, at all events until it is four months old.

It is therefore very evident that for very young children foods composed of baked flour and farinaceous elements are not scientific or proper foods, unless the starch has been acted upon by a natural digestive agent. The best food, especially for very young children, is that which most nearly approaches human milk in composition. It should be free from starch and *cane* sugar. The wonderful improvement in chemical science of late years has enabled us to obtain the solid constituents of cow's milk by evaporation. These solids, when some of the casein is removed and cream added, are undoubtedly the proper basis for infants' food, to which may be added some fine wheat flour, a little diastase in the shape of barley

malt, in order to convert any free starch into lactose and break up the casein of the milk. A small quantity of bicarbonate of soda or potash may be added with advantage, in order to render it alkaline. In such a food we have all the elements of human milk. Food scientifically manufactured on these principles will be palatable and rapidly soluble, and children brought up upon it will have the appearance of being well nourished.

The well-known firm of Allen and Hanbury has lately manufactured a food on this basis. They wisely make three kinds of the food. No. 1 consists of milk with excess of casein removed, and cream and milk added. No. 2 is for children between three and seven months of age. It is the same as No. 1 with addition of maltose and phosphates. No. 3 is a malted food and may be used up to the first dentition. I can speak highly of these foods.

I may here mention that Messrs. Welford and Sons prepare a food which they call *Facsimile Human Milk*. It is analogous in composition to human milk, and is prepared

in the Company's laboratory under the personal supervision of their analytical chemist. I have found this preparation to agree with children when all other prepared foods have failed, especially is this the case, when the child is suffering from dyspepsia.

The reader will have already gathered from the article that whatever food is selected to rear an infant upon, it should possess all the constituents of human milk in a form easily assimilated, it should also be palatable and free from all chemical preservatives, and so long as it possesses all these qualities the maker and name of the food is a matter of indifference. I stated in the article on milk that infants up to the age of eight weeks do better on a proper milk diet than any other food, and this is doubtless correct in the majority of cases, but there are a few children who at once show signs of malnutrition, produced generally by diarrhœa, when fed on any kind of milk, these should be at once fed on a non-starchy patent food when most probably an improvement will take place. After a strong robust child is

eight weeks old it should be fed on milk and food combined, or given a milk diet after 5 p.m. until the following morning, when artificial food may take its place for breakfast and dinner. Whichever plan is adopted the result should be carefully noted, and if from general appearances combined with sound sleep, and a genial temper, the food is doing well the duty of human milk, no change should be made except that the quantity should be increased as the child grows older.

When the mother is able to provide food for her child, it is as well before weaning to begin to feed the child on artificial food, and the best time to give it is the middle of the day. I think after the child is six months old recourse can be made to artificial food with advantage to the mother and child.

We can best watch the results of any food by carefully studying the growth of an infant, and seeing if it makes bone and flesh sufficiently so that the weight of the child is increased in proportion to its age. A healthy baby at birth should weigh seven pounds,

and should increase in weight at the rate of six ounces a week, so that at the end of the first year it will be nearly treble its weight. At no period of life is there so great an increase in weight as during the first year of infantile life. To enable a child to make bone and flesh so rapidly, it is easy to understand what an enormous amount of work is thrown upon the digestive organs, and how important it must be to provide food that contains materials capable of easy transformation, and in such quantities that will allow the growth of the body to be easily effected.

CHILDREN'S DIET.

HAVING fully discussed the best food for the feeding and rearing of infants, it now remains for us to consider the proper diet for children, after *slops* have been given up. This subject requires much forethought and study in consequence of its importance, for it is the period in a child's life when the whole growth of the body takes place, so as to render it capable of bearing the strain of continued existence. It entirely depends upon the proper nutriment supplied at this period whether the child grows up and develops sound healthy nerve, muscle, and bone, so that when it reaches maturity a splendid specimen of the human species is the result. I go so far even to say, that many diseases which now attack children would be quite unknown if the dieting

of children was properly understood. I go back to my favourite subject horticulture for an example for mothers to be guided by, by pointing to the splendid specimens of plants and flowers the gardener is able to produce by a careful study of soil, water, and air, whilst if he is ignorant of these natural laws, or does not apply them properly, how soon the plants and flowers degenerate into weak and sickly things. It is thus with the child; if the natural laws of food, water, and air are ignored, a vigorous child soon becomes a weak and sickly one, falling a prey to every disease that happens to come in its way. Unfortunately children are entirely dependent on grown-up people for proper dieting. They appear to have no natural instinct of their own to guide them, equivalent to the wonderful instinct in the brute creation. Children will eat anything and everything that comes in their way, no matter how injurious it may be, neither do they possess the faculty of knowing when they have had enough. Taking these points into consideration, I have in a previous article warned parents against

the bad habit of allowing children to dine with older people, or putting before them food which is unsuitable for them, so as to prevent their acquiring a taste for food or drink which will only do them injury. It is this way of bringing up children, viz., by feeding them at the same table as their elders, and on food that is not suitable for their well-being, and which their digestive organs are not capable of assimilating (although by grown-up people it may be easily digested), which produces a vitiated taste in the child of a liking for food which is not at all suitable. Such is the force of example, a force very powerfully marked in the intellect of the young. As an illustration, how can a father or mother expect a child not to have a taste for spirits, wine, or beer, if they have given it a taste of these liquids from birth? I would certainly advise that nothing be put before or given to a young child except that which is calculated to do it good in a nutritive sense. If this plan is strictly followed, it is seldom that a child grows up with a vitiated taste for improper food or drink.

When the parents have reared them up to manhood or womanhood in a strong healthy condition, that is all that can be expected from them, and they can congratulate themselves that their parental duties have been fully carried out. The wisdom and intelligence inculcated in children when they are properly reared should be sufficient for them to take care of themselves in after life, and look back with grateful thanks to the forethought and care of their parents, who so carefully reared them, and rendered them fit to compete in mind and body successfully with their contemporaries, at a time when the slightest breakdown means ruin.

I think I have said sufficient for the reader to thoroughly grasp the lesson I would wish every parent to learn in dieting their children, viz., the importance of building up the body during the only period when it can be accomplished successfully, for if this opportunity is missed, no amount of after care or trouble will be able to make up for the mischief that is sure to be wrought upon the constitution by neglecting the rules I

have laid down. The list of articles that can be included in the dietary of the young, are:—

- | | |
|-------------------------------|------------------|
| <i>a.</i> Meat red and white. | <i>b.</i> Fish. |
| <i>c.</i> Eggs. | <i>d.</i> Milk. |
| <i>e.</i> Farinaceous food. | <i>f.</i> Cocoa. |

<i>g.</i> Vegetables and <i>h.</i> Fruit	} which should be fresh, carefully selected, and placed upon the table scientifically cooked.

No other food is required, for in the above table every material can be found for the proper development and maintenance of the living fabric, in the shape of constructive material, heat, nerve, muscular action, and mechanical motion.

I will now say a few words on each of the foods in the list as they concern the dieting of children, but for a fuller description I must refer the reader to my work on *Food and Drink Rationally Discussed*. After mentioning these foods I will give a diet suitable for children of different ages.

Butcher meat should not be given to a child before the permanent teeth are all through, viz., about the fifth or sixth year,

then it should be cut up for them until they can properly use a knife and fork. To give a child, before that period, meat without its being finely minced is very harmful to its health on account of the child not being able to divide the fibres of the meat by chewing, hence it is swallowed in lumps, the gastric juice is unable to break it up and convert it into soluble peptones, the consequence is it passes into the bowels only to act as a foreign body, producing cramp and deranging the action of the bowels. The juices of gravy or soup mixed with potatoes or batter pudding is the proper way to introduce the nutriment of meat into the system. I do not think very young children require very much meat in any form. White meat being easily digested can be made use of with advantage, and can be more easily minced and cut up.

Fish is also a most nutritious article of diet for children, and they thrive very well upon it. It is a great pity fish is not more largely used in schools, &c., where the young are fed. The great drawback against fish is

the bones which it unfortunately contains in such abundance, and which require such careful extracting before it can be placed before a child.

I need hardly dilate upon the advantages of eggs and milk in feeding children, for they really are. our mainstay in dieting, being whole or complete foods, either of them being able to support life without any addition to it. Eggs ought to be new-laid and lightly boiled, when they are easily digested and assimilated. * Milk, as I have already advised in previous articles, should be boiled before using. Milk diluted with boiled water is by far the best drink for children of all ages, except at dinner-time, when plain water may be given.

Farinaceous foods which include cornflour, arrowroot, rice, oatmeal, &c, are most valuable. These with milk, eggs, and vegetables should form the essential food of children up to six years of age. I was astonished to find the number of nutritious and appetising dishes that can be made from Brown and Polson's cornflour with a

* Vide remarks on Raw Food, page 70.

little milk and a few eggs. Cocoa contains very many valuable properties, and can be used as an article of food for older children in the form of a drink with a little milk added. Most children like it, and enjoy a cup of hot cocoa in the morning for breakfast. A writer under the *nom de plume* of Historicus has written a most interesting book on *Cocoa*—*All about it*, clearly showing that cocoa is a beverage of very high dietetic value and that the *theobromine* it contains is a stimulant equal to theine and caffeine in tea and coffee.

Vegetables and fruit should always be included in children's dietary, as they are most essential to the growing child. It is not generally a recognised fact that children have an extraordinary power during early years of digesting and assimilating vegetable substances, which power becomes weakened as years roll by. I therefore would make vegetables, fruit, eggs, milk, and farinaceous food the chief dietary upon which children should be reared.

Food for children should be very carefully

selected ; all vegetables ought to be young, fresh, and properly cooked. The same may be said about fruit, especially that intended for eating raw, for this, to be wholesome, must be ripe and full of fruit sugar. Fruit containing, as it does, so many salts combined with acids which are daily used in the wear and tear of the body, and which require to be continually renewed, makes it on that account a most valuable food, especially during the growing stage. I am afraid many parents do not make sufficient use of fruit as a food for the young. I may mention here that many of the skin diseases so prevalent among children can be entirely eradicated by a judicious use of fruit in their dietary. I will also call the attention of the reader to the use of vegetable soups as an article of diet for young children. They are very inexpensive, easily made, very nutritious, and nearly all agreeable to the palates of the young. I need only mention 'pea-soup,' when scientifically made, to illustrate a typical food in the form of a vegetable soup which possesses all the materials to make both bone and muscle,

and which can be easily transformed into soluble peptones by the action of the gastric juice. I know of no food so appetising and nutritious for school children for their mid-day meal than half a pint of pea-soup with some stale bread.

In feeding children after the infantile period is past we must still divide their ages into periods, and the best division, in my opinion, is from one to three, three to six, and six to twelve years of age. We must, however, be guided by the permanent teeth as to the period when to commence giving whole butcher's meat as food. The most judicious way to feed children from one to three years of age is as follows : --

Breakfast.—A basin of boiled bread and milk or some porridge, or for a change a new-laid egg, lightly boiled, with bread and butter, may be substituted for the bread and milk and porridge.

Dinner.—Some mealy potatoes or batter pudding soaked in gravy from roasted meat, or some vegetable soup. For

the second course, stewed fruit with a little custard, cornflour, or rice. Boiled filtered water to drink.

Tea.—Bread and butter, with ripe fruit when in season. Milk and water to drink.

Supper.—Some patent food, such as Allen Hanbury's malted food.

Let four hours separate breakfast, dinner and tea, and two hours between tea and supper. Even during this period an intelligent amount of discretion must be exercised in the selection of food and its quantity, as the child advances from one to three years, and the same remark applies to all the periods named.

In the second period, the dietary may be continued as given above, with the addition of a boiled egg for breakfast, as well as porridge, and for dinner some soup, after which some cut-up butcher's meat, poultry, or fish with vegetables that may be in season. Cocoa and milk should take the place of milk and water at tea-time, and some lightly-made sponge or rice cake with marmalade or home-

made jam should be added to the dietary. Supper should consist of a cup of cocoa with some whole-meal biscuits. In the third period, viz., from six to twelve years of age, provided the permanent teeth are through, a change in the diet card must be made as follows:—

Breakfast.—Porridge with milk, followed by a boiled egg with bread and butter, or some fried fish, with large cup of cocoa and milk to drink.

Dinner.—Some vegetable soup, a small, quantity of butcher's meat, poultry or fish with vegetables. For the last course cornflour, rice, or batter pudding with or without stewed fruit. Boiled filtered water to drink.

Tea.—Bread and butter, toast, hot tea-cake, cake or bread with marmalade or home-made jam. A large cup of tea, or cocoa with milk.

Supper.—Some rice or cornflour or pudding with jam or stewed fruit. Boys after nine years of age may have bread and cheese.

I only give the above as a specimen for parents to be guided by, of a dietary for children up to twelve years of age. It would take up too much space and much repetition to give different diet-cards for various seasons of the year. I will therefore only say that frequent changes should be made in the diet in order that nausea may not be created for any kind of food. Children, I am sure, appreciate just as much as grown-up people, good living, and there is no reason why their tastes, which are healthy and fresh, should not be gratified, provided always the food placed before them is suitable for their development and growth. The culinary art does certainly require more time and intelligence devoted to it than is thought necessary in this country, so that a number of tasty and nutritious dishes can be made out of the same article of food by slight variations in the flavouring and manner of cooking. I may quote, for example, the egg, which a practical cook can place before the eater in such a variety of ways, that one not cognisant with the art of cooking can scarcely believe that so many tasty and dis-

similar dishes can be made out of a simple egg.

It is very difficult when children are attending day-school at a distance from home to arrange about dinner. I would caution mothers against providing cold meat in the form of sandwiches, which is anything but an economical food. Some pea or lentil soup made with *stock*, which can easily be made hot at the school, is certainly better for the child's health. Parents should always be careful to see that their children when attending school are provided with a good hot midday meal. Vide School Dietary, page 75.

With regard to the eating of sweets, I must say a few words, for it is a common habit among children of both sexes. I am glad to tell you I am no pessimist, nor do I think that carious and decayed teeth, and other ailments, are due to sweet eating, if only indulged in with moderation. The great harm in sweets, as sold, is due entirely to unscrupulous manufacturers who, instead of only using fine cane-sugar, butter, and the juices of various fruits for flavouring and colouring, make the sweets out of coarse

sugar, chalk, rancid butter, and use chemicals for colouring, which if not altogether poisonous, are certainly unwholesome.

I consider such sweets as butterscotch, sugar candy, acid drops, and chocolate are wholesome, provided they are bought from a good confectioner's, whose name is a guarantee of the purity of the articles sold. The quantity should be carefully regulated and the sweets not too hard for the teeth, a subject I shall refer to when writing upon children's teeth. There are also certain drinks which children are very fond of, and which are perfectly wholesome if manufactured only from pure ingredients, viz.: lemonade, ginger beer and ginger ale. It is a great misfortune for children that the making of the old-fashioned ginger beer, put up in stone bottles, has quite gone out of date. I consider it a most pleasant beverage when made as it should be, and a drink that cannot be improved upon. The juice of lemons with white sugar and soda water added, known as *lemon squash*, is also a refreshing and cooling drink for children during the summer season.

I would suggest that if more attention was paid to making these things at home, and if they were judiciously given to children, the children would not spend their pocket-money in purchasing *goodies* at shops that offer no guarantee as to the articles sold, and where the quantity given is unlimited so long as the bronze coin is forthcoming.

RAW FOOD.

THE subject of the value of raw food for children has not been sufficiently inquired into. There is no doubt in my mind that cooking food is only a process of civilization and not of Nature and it has not conduced to healthy growth of the body. In saying this I do not wish to be misunderstood and for the reader to think I am an advocate for returning to the primitive state with regard to food. We, however, cannot disguise the scientific fact that albumen from which we derive the greater part of our nourishment, is very easily digested and assimilated, when raw, whereas heat, in the shape of cooking, coagulates the albumen, rendering it hard and very indigestible; the consequence being

much of it passes through the body, instead of being assimilated.

Again, heat in the shape of cooking, changes chemically many of the most important salts found in fruit, vegetables, milk and meat, which are of the utmost use to replace those which are lost through the wear and tear of the body. Many of these salts are so altered in their chemical composition that they become insoluble and therefore useless.

This is especially the case with iron and phosphates. In iron and phosphorous salts we have two of the most important principles found in almost every organ of the body, and to them is due the strength and energy of the nervous and muscular system.

I have lately carefully considered the subject and have come to the conclusion that the rosy cheeks, luxuriant heads of hair and fine strong white teeth, often found among country children, is not due altogether to pure air and it is certainly not due to their unhealthy hygienic surroundings—but is entirely due to their eating a large amount of raw food, in the shape of coarse bread,

fruit and vegetables, containing a large quantity of soluble iron and phosphorous salts.

Parents in town often bring their children up too artificially. They have to boil all the milk, for fear of infection, and by so doing the benefits of raw milk are lost. I would advise therefore that milk be not boiled, if the source is known and beyond suspicion. Then they give their children white bread, made of flour, from which all the bran has been removed, whereas the bran is the part of corn which contains nearly all the phosphates and other mineral salts, being therefore the most nutritious part of corn. Children brought up on such bread must naturally be deprived of a large amount of phosphates which are so necessary to the formation of bones and teeth. Children, I think, should be given fine brown bread or have a plate of porridge daily in order to avoid the loss of phosphates.

Parents again frequently fall into the fallacy of peeling all kinds of fruit, before giving it to their children. The peel of sound ripe fruit, if perfectly clean, should be eaten as well as the fruit, for it contains most of the

fruit salts and soluble albuminate of iron that gives to the blood its bright colour and prevents anæmia and the pale condition of the skin, so constantly associated with debility in town children. I do not advise that the skin of oranges or sour food should be eaten, such as the skin of unripe plums, for naturally that would be unwise, but I have already stated there are nourishing salts in the skins of ripe apples, pears, greengages, etc.

I come now to the subject of raw eggs and meat. Nearly every parent knows that a raw egg is about the most nourishing and easily digestive food we possess, and cooking spoils its value as a nutrient. When it has to be boiled, it should be put into boiling water and allowed to remain in it for not more than two minutes, which just sets the albumen.

The very great value of raw meat extracts over cooked ones, has been acknowledged by the profession for some years. They are among the most important foods we rely on in serious illnesses, being so readily assimilable, the reason being the albumen is "raw" and not changed and coagulated by heat. It

therefore stands for reason that it is unwise to cook children's food too much. Beef and mutton should be slowly roasted before a clear fire, until the *raviness* is changed, it should not be burnt or rendered hard and indigestible by overcooking and allowing all the albumen in the meat to become consolidated. Our grandmothers were wise in their generation, when they gave the red gravy from the middle of a leg of mutton with some bread chopped up in it.

I have already plainly intimated that it would be foolish to advise the doing away with cooking, for often the great heat is our only safeguard against infection and living organism, but at the same time we need not overcook our children's food, particularly when we know the food is sound and good.

I have in most of my works recommended that water ought to be boiled and filtered before being drunk, but I have also recommended the drinking of pure spring water, and I consider if the latter is known to be pure, it is far better for children than river water boiled, from which the important salts are rendered insoluble by the boiling.

SCHOOL DIET.

THE question of diet in schools I consider one of national importance. It should be of paramount interest to all concerned in the rearing of children, and not least to the rising generation themselves. I am compelled to say from the very careful inquiries I have made into the subject, that it has been almost criminally neglected, and whilst the dietary of all classes of children has undergone an improvement, the diet in most boarding-schools remains almost as bad as it was in the middle of last century. I must confess I think parents are much to blame for not showing more common sense in the matter. I would ask them how they can expect to have a boy or girl properly fed and well educated for the paltry sum of twenty guineas a year,

yet these alluring advertisements are to be read daily in the morning papers, and hundreds of parents must be caught by them, much, I am sure, to the detriment of their offspring's development. It would be well for these parents to calculate the keeping of a strong, healthy boy, with a voracious appetite during the holiday period, and then ask themselves if they can expect a schoolmaster to be a philanthropist. I am afraid even to this day, if a search was made in some remote corner of the country, a prototype of the celebrated and immortal *Squeers* could be found. I know of one that is not a very bad imitation.

Unfortunately it is not this class of establishment that alone has defective dietary and where the young charges are positively stunted, for it also occurs in first-class establishments. I have the dietary of a school that was considered a very high-class boarding-school, only professional men's sons being allowed within its portals. The breakfast was served at 8 a.m., the scholars having their appetites unduly sharpened by studying in a cold school-room from 7 a.m. It consisted of a large

cup of weak tea and milk, with bread and butter. Dinner began at one o'clock with butcher's meat, sometimes hot and sometimes cold, potatoes and vegetables, followed by a tart or pudding. No second share was allowed, and it was finished in twenty minutes at the outside. Tea-time was 5 p.m., the food placed on the table was similar to breakfast, with the addition of some cake twice a week. Supper could hardly be called a meal, for it only consisted of two lunch biscuits and a glass of water. The pernicious system of *extras* was highly extolled by the schoolmaster, and those privileged boys had a piece of bacon, or a new-laid egg, and a glass of beer for dinner, and might even ask for a second share of meat. I consider the dietary at this school deficient both in quantity and quality, and the amount of nutriment that the boys could possibly get out of the food was not sufficient to maintain the physiological growth, which was duly stimulated by plenty of athletic exercise. Had it not been that the boys spent all their pocket-money at the *tuck* shop, a seri-

ous breakdown in their health would be sure to have followed this deficiency in the dietary. Yet how easily, if the headmaster had been a dietitian, could this dietary have been brought up to a proper standard, with only a trivial extra cost, for example, the sharpening of the appetite in a cold schoolroom ought to have been condemned. A large plate of porridge, with hot skimmed milk and sugar, or a plateful of potatoes, fried in bacon, should be added to the breakfast, vegetable soup made out of stock added to the dinner bill of fare, and a good nutritious supper in the form of bread and cheese. There is no better food for boys than bread and cheese, for they should have both strong teeth and sound digestions, if properly reared. Cheese is a most nutritious article of food. It contains a large quantity of nitrogen and carbon, in fact ten ounces of cheese is quite equal to a pound and a quarter of lean beef. For a change I would advocate pea or lentil soup or some macaroni boiled in milk, with a little cheese added. Cocoa should certainly take the place of washy tea.

I am in no way desirous of making the pupils fastidious, or to pamper their appetites with expensive luxuries. The foods I have recommended are nutritious, yet very inexpensive, and if properly served appetising, and would not cost more than two or three pence a day extra. Yet for this paltry sum the schoolmaster or mistress, or the managers in charge, stint their young charges and give them a chronic *stomach hunger*, and expect them to be continually working their brain when their body does not receive enough sustenance to enable them to perform their allotted task, hence the brain also suffers in proportion.

The mischief wrought by such rearing, perhaps only shows itself at that very vital period of life when physiological progress of growth is at its height, and every organ and every bone is in active development. We can take the period as between the ages of 14 to 18 years in both sexes. *Nature* not being supplied with sufficient fuel to keep pace with the rapid growth, the natural consequence follows, viz.: that some organ or

other breaks down. For this reason physicians are called upon to treat a large number of cases of incipient consumption, chorea, dyspepsia, debility, anæmia, and nervous diseases that should never exist in boys and girls if properly reared. I will allow masters and mistresses this excuse for such criminal carelessness, but whether it exculpates them I will not say--the excuse, that they are so engrossed with the educational part of the business that they have no time and no thought for the dietetical side of it.

The man who brought in the Bill for compulsory free education, without providing for compulsory free feeding of those who are the children of paupers, produced an appalling amount of misery, which he could not have realized at the time. I have often winced with horror to see some of these pinched, cold, half-starved children dragging their weary legs to a Board School, there to be bullied and scolded for their stupidity by their teachers. Give these children half a pint of hot cocoa and milk and a large piece of bread and butter and see how their intellects

will be sharpened, and the consequent disappearance of their stupidity.

I would have the reader to clearly understand that although my indictment is severe against schools generally, I am well aware that there are schools, and a great many too, where an intelligent amount of care is devoted to the dietetic side of education, which is clearly shown by the healthy and contented look of the scholars of these establishments. Nevertheless there are a very large number of schools scattered all over England where the strictures made in this article are fully deserved, and the dietary is quite insufficient in the following particulars:—

- a.* Foods are not judiciously selected or skilfully prepared.
- b.* Quantity insufficient.
- c.* Quality of foods served not rich enough in nitrogen and carbon.
- d.* Time allowed for various meals not long enough for proper mastication and digestion.
- e.* Seasons of the years not taken into consideration, for example, giving plenty of fruit

and vegetables in spring and summer, and hot cocoa and soup in autumn and winter.

f. The scholars should not be allowed to prepare lessons in cold schoolrooms before breakfast, particularly during the winter months.

g. Boys should not be allowed to take part in games involving violent physical exercise immediately after a meal.

In concluding this article I will say that it is the fault of the parents and guardians, in a great measure, when children get into such establishments, for they cannot have exercised a sufficient amount of trouble and care in the selection of a school. Before selecting a school they not only should pay a visit to the spot, but minutely inquire into the sanitary arrangements, hints concerning which are to be found in an article on *School Hygiene* in my work on *Domestic Hygiene*, but more particularly to the diet served, including particulars on every point of which I have given a short extract above. When these points are satisfactorily settled then the educational side of the question can be gone into.

NURSERY HYGIENE.

I HAVE noticed during my professional career a great want of due appreciation among mothers of a thorough knowledge of nursery hygiene. I know well enough this want is not from any lack of love for their children, but from a growing tendency among young fashionable mothers to lessen, as far as possible, their maternal duties, and leave the rearing of their children to inexperienced young women, who, although well disposed, have not gone through a sufficiently technical training to enable them to carry out their duties in a manner necessary to the children's health and development. When a mother is selecting a house for habitation, one of the chief inquiries should be if there is a suitable room for a nursery; but I venture to say in

by far the majority of cases this is the very last room thought about—the dining-room and drawing-room absorbing the whole attention, and if these are considered to be large and pleasant enough the house is taken.

After the agreement is signed the nursery is discussed, and the room generally selected is a room at the top of the house, in order that no noise from it can penetrate into the other rooms. The aspect is generally north, and the roof just above, which renders the room too hot in the summer and too cold in the winter. No thought is bestowed on the ventilation or the warming of the room.

I feel very sorry to make these charges, as I know this work will be read by thousands of mothers all over the world, and none of us like to be told too plainly about our faults. I can, however, truthfully say that the above description certainly tallies with the majority of nurseries I have visited.

It is very certain that, if we take the physical development of children into account, the nursery should be the room upon which the greatest care and intelligence ought to

be bestowed, particularly in a climate like we possess in England, where a large part of a child's life must necessarily be spent indoors.

I will, therefore, discuss shortly the following points, which must all have proper consideration when we select a suitable room as a day-room for the young:—

- a.* Situation of the room (light and sunshine).
- b.* Ventilation and warmth.
- c.* Cheerfulness, furniture, etc.

A.—When making a choice of a nursery, it is better not to have it situated at the top of the house next to the roof, but a large square room on the first or second floor facing the south. It should have plenty of light let in through large windows, which can be easily opened at the top by pulleys. These should be kept clean, which will allow plenty of sunshine to penetrate into the room—the universal tonic of animal and vegetable life. In this country we do not often have too much of it, but still there ought to be sun blinds attached to the windows. These can be wetted in the hot summer days by means of a syringe, so as to keep the room

cool. I should always prefer a room looking into a garden, but trees and creepers ought not to be allowed to block out the air and sunshine. The noise of light-hearted, merry children ought to fall upon the parents' ears as sweet-sounding music.

B.—Ventilation and warmth are both most essential in a well-regulated nursery. A large room with good-sized windows, which should fit closely, will really ventilate itself when we open the window or windows at the top and bottom, but if from any cause sufficient ventilation is not obtainable, recourse should be had to artificial ventilation. This subject, however, would take up too much space to discuss in the present article, so I will refer my reader to the chapter on *Ventilation*, and also that on *Warmth* in my work on *Domestic Hygiene*. The warmth of the room is best tested by a thermometer; we must not trust to our feelings, as they are very deceptive. A properly tested thermometer should be hung on the wall opposite to the fireplace, and ought never to register more than 70 degrees, nor less than 60 degrees—about the

medium is a pleasant, healthy temperature. There are, of course, days in the summer and winter when it is impossible to keep the temperature at this happy medium, and we must then do the next best thing. I would advise that gas be entirely excluded from the nursery, and if the luxury of the electric light is beyond our reach, we must make use of purified paraffin, the next best light. We must, however, take the precaution of placing lamps out of the way of the children, taking into account that the little ones are often very expert climbers, and soon mount a table or a chair for the purpose of examining a luminant, when the nurse is out of the room. This only shows that children possess intelligent minds; but the spirit of inquiry is apt to lead them into danger.

C.—The nursery should be made as cheerful as possible. The walls had better be painted with a cheerful colour—light blue, pink, or green—they can then be easily washed down and have another coat of paint when they require it.

I certainly would not have a carpet, as it

harbours too much dust and dirt, but some cork linoleum, which can be washed over every night, and on which the children can roll without getting dirty or hurting themselves. During the cold months, rugs, which can be easily shaken out daily, may be placed over the room. There had better not be much furniture in the room—only such as is absolutely necessary, which must be strong and of a comfortable kind; not the straight-back chairs without cushions, that our grandmothers thought were the proper kind of chair to make children erect when sitting. Children, to my mind, require as comfortable chairs as their elders; in fact, I think that during their childhood, which most likely will be the only really happy period of their life, they should have every comfort and legitimate pleasure in order that this period of human happiness may not be in any way marred.

I will, in conclusion, draw mothers' attention to a matter which I think is sadly neglected; in fact, I have found few mothers give a thought to making the nursery cheerful to the eye. Pictures of animals, country

and historical scenes should be hung all over the walls; they need not be of an expensive kind, for children are most charitable critics, but good oleographs or engravings. These not only afford enjoyable pastime when the little ones are tired of playing, but as a mode of education they are admirable. Every nursery should possess a few birds, for all children like to hear them sing and watch them fly about in a large cage, and the birds also reciprocate the children's appreciation. It makes them grow up with a fondness and kindness for animals in general. Flowers are also an excellent addition to pictures and birds; they give the children a proper taste for Nature in her most beautiful aspect, and it is extraordinary how soon children pick up a rough knowledge of botany, and are able to tell you the names of flowers they have seen. These extra comforts do not cost very much, and we should take into account the amount of good they do by developing the artistic tastes and kindly thoughts which are instinctively latent in every child's brain.

TRAINED NURSES FOR CHILDREN.

THE subject of nursing generally has received a large amount of attention of recent years, so much so that the demon "fashion" has crept into it, and I am greatly afraid done much injury to nurses who have devoted their lives to the calling purely from philanthropic motives, because the public are beginning to look upon those healthy-looking girls flitting about all over London in the garb of a nurse, as myths. I am certainly rather horror-struck myself when I see the garb carried into music-halls and other places of amusement. I do not think that those who are true to their profession would carry their calling into such places.

The fashion to become a nurse is simply due to the fact that some ladies in the highest

position have supported and taken great interest in so excellent a cause, which has prompted a number of silly, hysterical girls to enter the profession, who are totally unfit, both mentally and physically, to undertake the arduous duties of a nurse—much to the disadvantage of those excellent women who possess every attribute for making clever and efficient nurses.

The cause, however, is a good one, and those who have interested themselves in it will certainly receive the heartfelt thanks of posterity. The nurses who had charge of the sick twenty years ago were composed of a number of ignorant, middle-aged women, who had no notion of exactitude or cleanliness, and who always tried to influence the patient concerning the doctor in attendance, according to their own superstitious ideas of charlatan medicine; and, unfortunately, it often happened that the patient believed in them, the consequence being that medical men who gave way to these gossiping daughters of Eve were sure to get on.

The favourite remedy of these nurses for

all complaints was the gin bottle and plenty of meat; they took no heed of dietetics, cooking, and hygiene, for the simple reason they were altogether ignorant of these sciences. The worst point about these women was that they were most potent carriers of infection, which was stored up about their persons, and underneath their nails. Hospital patients shared equally with private patients, for there were really no properly trained nurses to be had, and even those who had been in some public institution for years generally left it as ignorant as they entered.

It is a very singular fact that with all the improvement which has taken place in the teaching and training of nurses for invalids—a beneficial progress about which I believe no one can have a contrary opinion—no improvement, or very little, has taken place in children's nurses. Parents still entrust their offspring, which, I presume, are more precious than their own lives, to young girls and women who know no more about the nursing, rearing, and feeding of children than they do about nursing invalids. This has been a mystery

to me, and I have pondered over it; but have certainly never been able to solve the extraordinary apathy of mothers in this respect.

If I were to publish my note-book, made during my career as a physician, concerning the injury, and even death, caused through nurses by their want of knowledge of infantile complaints I am sure there would be at once an awakening to the fact that nurses for children require a course of teaching and training, before they are fit to undertake the management of children. Every medical man, especially the family doctor, will, I am sure, endorse these remarks. Very often a child is suffering from a slight illness, the family doctor is called in, who gives advice which if faithfully carried out would cure the disease, but the nurse, not having listened to the doctor's instructions, does something, through ignorance, quite opposite, which, perhaps, turns a simple complaint into a serious disease.

I cannot understand how mothers can expect anything else if such a class of nurse

is engaged, who does not profess to have had any training. She is doubtless clean, honest, and highly respectable, with the great additional quality of being fond of children and, so far as lies in her power, would do anything to promote the children's health and happiness, but how, I should like to know, can she promote their health and rear them properly, when she is not a mother herself, and has not had any teaching or training to make her a proficient nurse? The only training she has had is generally minding her brothers and sisters in some poor cottage in the country.

Children of the rich are worse off than children of the middle and poorer classes, for the former leave their little ones almost entirely to the tender mercies of hirelings, whereas the middle-class mother often undertakes some of the duties of a nurse herself. A doctor once told me a very good tale which bears upon the subject. He was attending some children of an aristocratic lady, in the country, who, although devotedly fond of her offspring, left them entirely in the

hands of nurses whom he had found to be none too efficient. Questioning the mother one day concerning the management of her horses and dogs, the lady told him that the secret of her success was that she was always particular only to engage expert practical men to look after them, who had a thorough knowledge of their management. The doctor afterwards gently hinted that he thought, if she had paid the same attention in the selection of her nurses, her children would have been all the better for it.

I would suggest, considering the few callings opened to ladies, and the fearful struggle for existence that is going on in both sexes, that to become a trained nurse for children would open up a branch for industrious educated women which is both interesting and ladylike, and which would fit them for wives better than any other profession. There is this great advantage about the calling of a nurse: she has her own apartments, can take her meals by herself, has plenty of open-air exercise, and there is not too much physical work involved in the duties.

There is no doubt that women should possess certain qualities to enable them to be fit persons to enter such a calling; they ought to be well educated, of a gentle disposition, possess great patience, and be fond of children. Some will say that they cannot see the reason why nurses require any elaborate education. I will answer their criticism by stating that the reason I consider nurses should be educated is not so much because the teaching and training requires any great amount of education, but because children, when brought up by a nurse who speaks the English tongue correctly, have really half their education completed before they go to school.

The teaching and training should partake of a thorough knowledge of clothing, children's dietary, nursery hygiene, cooking, and a knowledge of infantile complaints and the method of nursing them when ill. I venture to say that a nurse trained after the manner I have recommended would in reality be most economical, because she would be the means of preventing much illness, and the children

would be reared on scientific principles, which produce specimens of health and beauty that might well be compared with the strides horticulture has made of recent years on the same lines I am advocating in regard to nursing.

In order to accomplish the scientific training of nurses it would be necessary for centres to be established all over the country where a complete course of lectures would be given at stated periods. The practical part of the work would have to be learnt either as probationers, under nurses, or by doing the poor a charitable service by looking after their children when they are out at work. Young married women could also have the advantage of attending the lectures with great advantage to themselves and their offspring.

* I feel sure that every intellectual woman after reading this article and duly considering the subject, will entirely agree with me that nurses who have the sole charge of bringing up children should certainly have some technical knowledge of the duties which belong to that office.

* The author will be glad to hear from any lady of experience on the subject.

CLOTHING.

Food is merely fuel for the body which produces heat and force, in the same way as coal produces heat and steam. If we by injudicious clothing allow this heat to evaporate too quickly, a certain amount of force is wasted, all our efforts in the careful selection of proper nitrogenous and non-nitrogenous food are literally thrown away, and those vital functions of the living body, viz., the production, dispersion, and preservation of animal heat are all upset. This power of producing heat and motion, through the transformation of proper food is the great vital property of the living body, and however incredible it may seem it is none the less a scientific fact, that the body generates during

the day sufficient heat to boil many gallons of ice cold water.

We must, therefore, in order not to waste this heat, cover the skin with healthy sanitary clothing, adopted to the various climates to which the body is exposed, in order not to allow the heat to be drawn too quickly away and also to protect that delicate covering of the body, viz.: the skin, the functions of which we will carefully consider in a later article. If we put aside for a few minutes the importance of preventing the vital heat from being wasted, it will be only to call the attention of the reader to another equally interesting point, viz.: the protection of the skin from excessive external heat or cold, either of which does injury to the skin and through it to the general health. Excessive cold in our climate is the *fiend* that carries more children to their graves than all the other diseases put together.

Cold produces chest, lung, and kidney diseases in addition to rheumatic complaints, all of which are prevented by proper attention being paid to the clothing. Parents

often tell you that their children are pre-disposed to chills, and that no amount of care will prevent their taking place. I believe this contention is in the majority of cases entirely fallacious, for children, as a rule, are not at all liable to catch chills, as they generate heat too quickly for that. I have no doubt if these cases were thoroughly gone into, we should find that the result was entirely due to the clothing being faulty in some respects, either as regards quantity or quality. I need not dwell upon the fact, for it must be apparent to anyone who walks in the various parks in London on a winter or spring morning. You are sure to see a number of children being pulled along by their nurses with their legs and arms bare, shivering with cold, and young infants crying in their perambulators, pinched up and looking like boiled lobsters, their garments being far more fit for some tropical climate than for our own east winds. I wonder when mothers will look after their children's material comforts and not send them out as show dolls!

To observant minds, the fact that animals which are exposed to all conditions of climates, seldom or never catch cold, except when in captivity, must certainly have struck them very forcibly; but after carefully going into the subject they will discover that the comparative immunity from ailments among the brute creation is due to the fact that benign Nature clothes them, whereas children are clothed by their parents. From the great immunity of animals from diseases due to chills, we should be taught a great lesson, viz., to adapt, as far as possible, the same material which forms the clothing of the animals indigenous to the country we live in. This material we find is composed of two substances, wool and hair, both of which can be easily utilized in the making of children's clothes, and thus give the children all the benefits that are to be derived from Nature's clothing.

If we practically and chemically examine into these benefits we find that wool possesses the following qualities:—

- (a) It is a non-conductor of heat, *i.e.*, it does not abstract or draw heat from the body.

- (b) It is porous, allowing vapour and gases to pass through.
- (c) It absorbs moisture rapidly, but does not retain it in its fibre.
- (d) It prevents a backward current of air from getting to the skin.

When we compare these qualities with the fibres of cotton and linen, we find that the latter are very inferior, and regarded as conductors of heat, they rapidly abstract heat from the body they come in contact with, and in addition absorb moisture, at the same time retaining it in their fibres. We practically experience these characteristics when we put on a cold linen shirt, or get overheated with one on. The shirt in the latter case becomes saturated with moisture, clings to the skin, and gradually chills it.

In order therefore to keep the skin uniformly warm, nothing can be better than a woollen garment for a skin covering if we wish to avoid chills. The garment should be made of pure wool, without any admixture of cotton or other material, should be undyed, and free from any chemical ingredients. A covering

made of the above material is about the very best imitation we can have of Nature's clothing, and should preserve the child from chills, and make it less susceptible to the various changes of climate.

The name of Dr. Jaeger has long been associated with a pure sanitary woollen system, and he claims for the underwear devised by him that it is made from:—

- a.* Pure, unadulterated, undyed and unbleached animal wool.
- b.* Being made of porous stockinet web, it permits the exhalation of the skin to readily escape, but prevents ingress of draught.
- c.* It maintains the skin at an equable temperature, being a slow conductor of heat.

I have carefully examined some specimens of the material of which the underwear is made, from one of the depôts that sell Dr. Jaeger's goods; and from a very careful chemical and practical examination of the material, I found that all the above points

claimed for the goods are in accordance with the results of the examination. Mothers can provide themselves with woollen material and make the clothes at home.

The three garments I consider so beneficial for children of all ages, after they are five years of age, is a combination underwear and a kind of pyjama suit for both boys and girls, made with such variations as may suggest themselves to the maker. For babies, a night-gown made straight with a high neck and long sleeves. Children kick about so in bed that they frequently get themselves uncovered and exposed to cold draughts of air, and it is most necessary they should be provided with a sleeping garment which permits full freedom of movement, and made very light but at the same time warm, without the child being able to kick it off, whatever its movements may be. I have a little patient now that frequently had rheumatic attacks until I prescribed a pyjama night-dress made of Dr. Jaeger's pure, porous wool.

Although a child's skin may be properly

protected by woollen clothing, and is, therefore, most likely to escape chills, yet it is, however, very advisable that all the other garments should be made of wool, in order that the advantages claimed for the woollen covering may be continued in the outerwear, as it can be easily understood, if any other material is used the exhalation of the skin must be stopped and absorbed in the material, which in course of time gets saturated, and emits an offensive odour, becoming in consequence quite unsanitary.

In conclusion, I would add that the subject of clothing should be of interest to every mother on account of the great liability of children to diseases of the chest, and other forms of cold. Taking then into consideration the numerous advantages of woollen clothing and its economy, I would suggest that every garment be made of pure wool. The thickness and number of garments may, however, be changed, according to the season of the year, being made of a thick woollen material in winter and a lighter one in the summer season.

EXERCISE.

IN a later article we shall fully discuss the question of sleep as being quite essential for the rapid growth and development which children of all ages are undergoing. Sleep, the great giver of rest to every part of the body, must be followed by a regular and not excessive exercise of all the muscles which produces first waste, then hunger, and lastly fatigue. If, however, this exercise is carried to excess, and without the due alternation of periods of rest, it may lead to exhaustion of nutrition, and to wasting or degeneration of the muscles. On the other hand if sufficient exercise is not taken the muscles, thinking there is no further use for them, soon become flabby, weak, and soft, and then gradually waste. To provide a regular, proper, and systematic exer-

cise for children in order that it may be conducive to robust health, and strength requires much thought and experience. No hard and fast rule can be laid down, for each different constitution requires a different kind of exercise, which we will proceed to explain shortly.

In the first place it is well to have a clear idea of the effects of regular exercise on healthy organs. It increases the action of the lungs, for we find the amount of air inspired and the carbonic acid expired are greatly increased. Exercise also increases the force and frequency of the heart, producing a quickening of the circulation all over the body and increased action of the skin. Digestion is also improved, appetite increased, and the nutrition and vigour of the body generally benefited. All these good effects are altogether neutralised if the exertion is excessive and ends in exhaustion.

I would have parents bear in mind that all exercise to be beneficial must be agreeable to the child, in order that the mind may call into play the muscles of every part of the

body. A very good illustration of a perfectly exhilarating exercise for young children up to the age of twelve is the *hoop* when driven by a stick, particularly when they are taught to use both hands. A race with hoops in a properly selected place, brings into play the active movements of the legs, arms, and chest, and produces much frolic and fun when the goal is reached. During the greater part of the year this exercise is most beneficial, for a short run soon produces a natural glow of the body that prevents the child taking any notice of the temperature of the weather. All outdoor games, when carried on judiciously are beneficial. Among these are riding, rowing, cricket, skipping, lawn tennis, football, &c. Unfortunately, of late years, all these exercises have been carried to excess, owing in a great measure to the spirit of emulation being so strongly engrafted in all English boys and girls, so the natural consequence is the weak are sure to suffer in attempting to accomplish that which their strength will not permit them to do without injury to their health.

Among the artificial ways of taking exer-

cise I may mention gymnastics, dancing, and drilling; all conducive to the natural development of the body. Drilling, combined with dumb-bell exercise, is good for both boys and girls, but the weight of the dumb-bells must be carefully regulated. Boys can commence with one pound and go up to six pounds, but four pounds is the maximum weight for girls. The best time for this exercise is either after breakfast or after morning school, and if the instructor is one who can win the confidence of the young, and does not make the exercise a toil, the children soon begin to like it and take great interest in the various movements which they perform in a short time with much grace and agility. The various movements of drilling bring into play the muscles of every part of the body which stimulates growth and strength, producing an erect condition of the body and an elegant step—a charm that belongs alone to the two-legged race. Dancing is also a most beneficial form of exercise, and conducive to a general growth of the body, particularly of those muscles which are brought into play

by the graceful movements of the different dances. It is a capital way of giving the body exercise during the winter months, when outdoor exercise is difficult owing to the vagaries of our climate. Dancing possesses also this very great advantage in being a form of exercise very exhilarating to the young, particularly those of the fair sex. I remember a very practical and sensible schoolmistress telling me that having a large number of day-scholars who lived long distances away from the school, in order to prevent their catching cold in the winter, she used to break up lessons half an hour before the proper time, open the windows, and let the children dance to the music of some lively tune. She found it made the children get thoroughly warm before starting, swept away the cobwebs from their brains, and made them go on their road home happy and contented. There is a vast difference between a child getting warm by sitting in a heated atmosphere and then going out into the cold air and a child getting warm in a cold room by physical exercise. In the former case there

is every probability of the child getting a chill, whereas in the latter it is just the reserve.

All the other artificial exercises and sports I have named are more or less useful to aid the physical growth of the body as long as they are not carried to extremes, as I have already been careful to point out. It is necessary, however, to mention that it is often essential to take more than one form of exercise. For example, walking is a splendid exercise for the legs and the muscles that govern the movements of the lower part of the body, whereas the arms and chest get little exercise, while in riding the muscles of the lower extremities have little use made of them. Rowing I may cite as another example of the latter kind of exercise, except that the muscles of the lower extremities are more used than in riding.

With every kind of exercise there is one point that must be carefully gone into, viz., the fitness of the boy or girl for any violent exercise. Some boys and girls, for example, can play football and lawn tennis with impunity, while to others violent exercise of this kind

would only tend to weaken the muscular valves of the heart, by straining that organ too much, whereas a lighter form of exercise would do good. I therefore would advise that a proper medical examination be made of every boy and girl before they begin any exercise wherein a violent strain may at any time be put upon the heart and lungs. If all the organs are healthy and sound they can indulge in any game with benefit to their health and muscular development, but if there is any suspicion that any organ of the body is weak, these more violent games should be eschewed, and only those exercises taken as recommended by the medical examiner.

Yet even for those whose health precludes the indulgence in games or active exercise, there remains a means by which their muscles may be developed, their organs stimulated to healthy action, and their general condition immensely improved. This is by induced movements, and, to use a somewhat paradoxical expression, *passive exercises*, which is well illustrated in a system known as the 'Swedish movement cure.' Massage, again, when prac-

tised by well-trained intelligent operators, under scientific guidance, is a means not yet thoroughly appreciated either by the medical profession or the general public. I believe this want of appreciation of so excellent a method of producing passive movement is entirely due to the unsatisfactory results in many cases of treatment through the ignorance of the operator, who undertakes to perform duties without having gained sufficient knowledge by a scientific course of instruction, which alone renders him or her capable of doing good.

As a conclusive evidence of the value of properly systematized exercise compare the highly indulged pet dog of the household—whose natural outline is obscured by excessive adipose tissue, and whose movements are rendered sluggish through the embarrassed condition of his breathing powers,—compare this unhappy creature with the highly-trained greyhound whose exquisite symmetry is accentuated, and whose muscles are developed by judicious and properly arranged exercise and feeding, so that his speed is said to exceed that of a racehorse.

TEETH.

At first sight the teeth appear to have very little connection with articles on the *Rearing and Feeding of Children*, but when we inquire more closely into their uses and functions we find that teeth are an essential apparatus in dietetic economy.

I have in a previous article explained that we should be entirely guided by the development of the permanent teeth as to the period when children should be given uncut meat as an article of diet.

The appalling number of young people we meet with in the present day who have lost a large number of teeth, and have had to replace them by false ones, or who have in their mouths a number of decayed teeth, certainly shows great neglect in the rearing.

When the teeth of children are regularly and carefully attended to they seldom decay, in fact no organ in the body repays us so much as the teeth for the care and attention we bestow upon them. Unless the teeth are sound the food cannot be broken up and made fit for the gastric juice to act upon it, so that no amount of care taken in the selection of proper food can sufficiently compensate for the loss of the work which is performed by the teeth.

I must certainly blame the medical profession for carelessness in prescribing medicine for children without due regard to the chemical action of the ingredients on the delicate structure, known as enamel, which is the protecting covering of the teeth. Mothers and chemists are even more to blame in this respect than doctors, for where the latter are seldom consulted, the former are constantly doctoring children with all kinds of drugs, the action of which they know little about.

Among the common medicines given to children that play havoc with the teeth are steel drops (perchloride of iron), Parish's food,

syrup of hypophosphites, quinine when dissolved in sulphuric acid, &c. I may, in short, say any medicine that contains dilute nitrite, hydrochloric, sulphuric, or phosphoric acid. A simple experiment of placing a tooth in a very dilute solution of any of these acids, and watching the effect of the acid, will at once convince anyone of the dire results of continually permitting acids to come in contact with the teeth. Any scientific and conscientious dentist will tell you that these acids of the pharmacopœia are his best friends. The vegetable acids, such as citric and tartaric acids, do not injure the teeth on account of the saliva being sufficiently alkaline to neutralize them.

Temporary teeth appear about the seventh month after birth, and are all through by the twenty-fourth month after birth. As the food for the first year should be of a milky nature only, little attention need be paid to the gums during this period, except that they ought to be wiped with a small sponge soaked in borax night and morning. In the second year, a soft badger's hair brush should be

used. When the temporary teeth become loose or decayed, they should be removed to make room for the permanent teeth, the first of which should appear by the sixth year, after which they steadily make their appearance to the sixteenth year. A child should be taught, as soon as possible, to use a tooth-brush, particularly before going to bed, and a grown-up person should see that the operation is properly performed. At schools this cleansing of the teeth is much neglected, boys and girls not recognizing the precious worth of the teeth, both as an ornament and an important part of the digestive apparatus, try in every way to get out of the trouble of performing this necessary function, and play all kinds of pranks with one another's tooth-brushes. This can only be prevented by carefully explaining the misfortune of losing the teeth in after years, and seeing personally that the cleaning is done. It is better to have the name or number written on the tooth-brushes and lock them up.

I believe, as a general rule, the best way to clean the teeth is first to use a toothpick,

then to brush gently with clean water and lastly with a little precipitated chalk.* I would strongly advise parents to take their children regularly to a qualified dentist to have the mouth inspected. It is not only essential, if the teeth are to be properly preserved, but most economical as well, for as in the homely saying 'a stitch in time saves nine,' so in the same manner a tooth saved in time will prevent others from decaying. I have failed to discover that there is a surgeon dentist appointed to any of the large private school establishments, it is only the School Board that goes in for this luxury.

There is another point I would like to call parents' special attention to, viz.: that children constantly suffer from malnutrition due to decayed teeth. They also suffer from constant toothache, which wears them gradually away, owing to deficiency in food through fear of chewing it, and swallowing the decaying mat-

* Prepared Chalk	1 drachm
Boric Acid	$\frac{1}{2}$ "
Chlorate of Potash	$\frac{1}{2}$ "
Carbonate of Magnesia	1 ounce
May be scented with Attar of roses.	

ter. Hence they grow thin and weak, owing to a cause that could be easily obviated. In the article on feeding children I stated that I did not credit sweets with all the injury done to teeth, during that period when they are often eaten to excess. I have more than hinted in the present article that medicine, in which are mineral acids, are really the culprits, nevertheless I would have parents to know that sweets of *stony* hardness, when chewed, cause great injury to the teeth, by breaking off small pieces of the enamel, or cracking it. When once the enamel is fissured in any way, to allow the secretions of the mouth to pass through, decay soon follows. Children, therefore, should be taught not to bite sweets but suck them, which they will greatly prefer as soon as they get into the way of it. Hard sweets, nuts, and other hard substances, should not be given to children or put in their way, and girls should be taught not to bite cotton. Strong healthy sound teeth can do an enormous amount of grinding various tough foods, but they cannot stand sudden concussions, which result from cracking sweets, nuts, & c.

I am fully aware that there are children born with very friable teeth, which seem to break down under the slightest provocation. Some of these cases are hereditary, others are due to the bringing up by hand. The last cause can often be entirely prevented by giving the child small doses of phosphate of lime during the milk period; and the hereditary cause is often improved by the same method. Brittle teeth generally show weakness of the constitution, so it is better to consult the family doctor as well as the dentist, for often their combined wisdom can prevent further destruction of the teeth by removing the cause. It anyhow shows that the teeth require even more care in children with hereditary disposition, or who have been brought up on artificial food. I consider the subject of teeth well worth the careful consideration of all parents and those who have the bringing up of children, because there is no cause which more frequently lays the foundation for dyspepsia in after years than unsound teeth in children. The symptoms grow very slowly, and are at first only apparent

by a feeling of debility. Tonics and a change of air are generally resorted to, with great benefit for a time, but a relapse soon takes place, when clearer signs of indigestion manifest themselves. It is but what might be expected when we consider that all kinds of food enter the stomach daily for years only partially masticated, the consequence being the stomach gradually becomes diseased by having too much work thrown upon it.

HAIR.

I NOW mention the importance to parents, and to all those who have the management and bringing-up of the young, of a slight knowledge of the management of children's hair. It is a subject that seems to have been very much overlooked by those who write in order to teach mothers the proper manner in which to rear their children. I do not remember seeing anything written about it in any of the popular journals that often have interesting articles on the subject of health and hygiene.

The hair when healthy, glossy, and abundant is, in my opinion, one of the most exquisite of the external ornaments nature has given us, and she adequately rewards us for any care and attention we bestow upon it.

It very soon becomes brittle, dry, and *shabby-looking* if neglected.

The construction of the hair is very simple, but at the same time the mechanism is skilfully constructed in accordance with the beautiful mechanism that governs all the other parts of the body. The hair is in reality a part of the skin elongated, which is called a filament. This filament is attached to a bulbous root which is supplied with nutriment by means of a small artery. The filament is hollow and stained with various coloured pigments, that give the characteristic colour to the hair. There is also a small gland in connection with the root which secretes an oily substance which continually lubricates the hair. We have, therefore, in every hair of our head, such a skilfully arranged piece of mechanism, that each hair is quite complete in itself.

From the above very short description of the growth of the hair, the reader will at once grasp the chief point concerning it, viz.: its fragile qualities. It can be best compared to a very delicate flower which requires constant attention and care during its growth.

The grower must not only provide it with proper soil, air, and sunshine, but must also regularly examine it, separate decaying leaves or trim it according to circumstances. In like manner the hair must be properly nourished through the general circulation of the body, have plenty of pure air and sunshine, and be examined constantly and cut judiciously. Considering the alarming amount of baldness, particularly among men, one sees in the present day (which certainly should not exist) the subject on which we are writing ought to be one of paramount interest to the general public. I have not the slightest doubt but that a large proportion of the premature baldness one sees in the present day is entirely due to neglect in the management of the hair in boyhood and youth. In discussing the subject I think it better to do so under particular headings, as follow:—

- (a) Washing the hair.
- (b) Cutting the hair.
- (c) The use of washes and pomades.
- (d) Coverings for the head.
- (e) Brushing and combing.

Unfortunately for the public, the *hair specialist* is nearly always a quack who preys on the ignorance of his clients, which is, if possible, deeper than his own. These gentlemen are generally very talkative and wordy men, who seem to be able to 'gull' even their intelligent customers, and lead them to believe that they are savants in the art they profess to have so much experience in. I have often cross-questioned these specialists, and have convinced myself that they know nothing about the physiological growth of the hair, much less its minute anatomy, and that their treatment for diseased hair is merely empirical, carried out by means of recipes which they have copied perhaps from some chemist's recipe book, and which they recommend in almost all cases, paying not the slightest attention to the cause of the disease that makes the hair fall out. If people will consult such ignorant men upon a scientific subject, they can only have themselves to blame. On one occasion one of these gentlemen very much wished to singe my hair, after cutting it. I asked him 'what

good singeing did?' He replied '*it prevented the cold getting to the brain through the hair tubes.*' On that reply I declined to have my hair disfigured by singeing, as singeing in most instances is a useless operation, for nature herself seals up the tubes when cut.

There is much controversy concerning the benefit to be derived from washing the hair. Those who are against the practice say very truly that the oil supplied by nature as a lubricant is all washed off, and in the majority of cases it is not renewed fast enough to prevent the hair from becoming brittle and dry, so that in time the hair falls out. I consider myself that due regard must be taken of the place you reside in, for example, children living in London would necessarily require the hair washed oftener than those living in the country. I consider that the hair does not require washing oftener than once a week in the very young, and once a fortnight after the age of five years. It should be thoroughly done. The water must be hot, and a little powdered borax added to the soap in order to dissolve out the grease

and dirt. After it has been cleansed by pouring a quantity of lukewarm water over it, the hair should be carefully dried with a dry rough towel. It is, however, a mistake to rub the hair as if your object was to rub off the scalp, as commonly practised by hair dressers. Lastly it should be combed and brushed with a brush, the hardness of which ought to be in accordance with the thickness and strength of the hair. If the hair getting dry becomes brittle, and loses its natural gloss, it is a good plan to rub over it a lotion composed of half glycerine and half rose-water. Some children's hair can stand washing much oftener than others; it entirely depends, as I have already stated, on the amount of natural grease secreted.

The next point to consider is cutting the hair, a routine gone through in all civilized countries. It does the hair good when the scissors are not applied too vigorously. To be of benefit to the growth of the hair, the cutting should be more frequently done than is customary, and then only the ends should be cut off, in order that the

hair may always be kept at a proper length. Cutting the hair close to the scalp may not injure the fast-growing hair of young boys, but if from any cause the growth should be weak, the scalp is exposed to cold, which tends further to stop the growth, and may also render it weak. I have always found that the most exuberant growth of hair in men of middle age has been amongst those whose hair has not been 'cropped' in boyhood. Girls' hair requires even more care than boys as regards cutting, the ends ought to be regularly cut and trimmed.

I may say, speaking generally, that all washes and pomades should be eschewed, for children's hair ought to possess sufficient natural grease to make it glossy and soft, but should this natural grease be deficient, pomades made of lanoline, vaseline, or bear's grease, are perfectly harmless. Chemical ingredients should only be added to the pomade in order to eradicate any disease of the skin of the head. I have already mentioned a lotion of glycerine and rose-water, which is also perfectly harmless, and

is a good substitute for natural grease.

Due attention must always be paid to the covering of the head, for more often than not, dry, loose, and weak hair is produced through the covering being too hot in summer and too cold in winter. We must remember in selecting a covering for the hair, the great vascularity of the scalp. I think the best covering for the head in summer is a straw hat, lined inside with flannel or a woollen material. In the winter a hat or cap composed of a woollen material, more especially in very cold weather. The main object being to keep the head cool in hot and warm in cold weather. The headgear worn by men and women of the present day is most unsuitable, and doubtless tends to make their hair weak, dry, and loose.

Judicious brushing and combing of the hair is of great benefit to it. Brushing with a brush, as I previously recommended, cleanses the hair of scurf and dirt, in fact it washes the hair daily. If, however, the brush is too hard it only irritates the scalp, producing an unhealthy inflammatory state, and consequently the hair suffers.

SLEEP.

‘SLEEP is to the mind what food is to the body;’ we might, however, extend this saying by adding that sleep is food to the body as well. Nature intended sleep as a sort of stop-gap to prevent exhaustion, and too much bodily fatigue; in fact, to enable the muscles to recover themselves by means of rest. If it were not for this wise provision of nature, some people would soon wear themselves away by being continually on the move, unless they were prevented by a feeling of excessive fatigue coming over them, which gradually induces sleep. Again, when the body is deprived of fuel, in the shape of food, and the various organs are not sufficiently nourished, Nature tries to overcome this deficiency by means of sleep, which pre-

vents, in a great measure, further wear and tear of the body.

Sleep is every bit as essential as food to the human economy, more particularly in the case of very young children, who require a very large amount of sleep in order to support rapid growth. Children, until they are four years of age, require nearly twelve hours' sleep at night, and about two hours in the middle of the day; after that age, the midday sleep may be discontinued.

There are many causes which prevent young children from sleeping properly, and which can generally, by patience, be found out and remedied. Among the most prevalent causes are :—

- a.* Too heavy a meal before bed-time.
- b.* The child is either too warm or too cold.
- c.* A pin or a bristle in the child's night clothes, or in the blanket, producing pricks and pain.
- d.* Active little insects known as fleas.
- e.* Worms may cause sleeplessness through irritation.

- f. Dentition, particularly in children with very hard gums.
- g. Various forms of skin eruptions which cause frequent itching when the child gets warm.
- h. Many infantile diseases.

I need hardly say that nearly every one of these causes can be cured by proper treatment, and it is nothing else but cruelty for a mother to hear her child constantly crying and waking up at all hours of the night, without endeavouring to ascertain the cause. When children are carefully fed and reared they never wake up from the time they go to sleep until daylight falls upon their eyes. The sleep is sound and peaceful, and when they awake they are thoroughly refreshed and appear full of life, electricity, and spirits.

Parents should always discourage the desire of young children to sit up late, for it is a habit that gradually grows upon them, and if they are allowed to do so often they soon begin to think they have a right to do as their elders do. It is false kindness altoge-

ther, for it only causes excitability of the brain which militates against sleep. The child so treated is nearly sure to have a bad night, disturbed by dreadful dreams.

I know of no place where the want of sleep is more detrimental to young people than at boarding schools, where the dietary is not sufficient and the mental work excessive. The scholars, however, think it good fun to talk or read to an advanced hour of the night. I remember at a school where I was, we used patiently to wait until the headmaster had gone to bed, which he did regularly at eleven o'clock, then out came our private candles, which were duly lighted, and we read '*Dick's Adventures in the Lands of Horrors*,' or some such bloodcurdling tale, until about half-past twelve or one o'clock. Nice food for a tired brain to sleep upon. The result was that, at half-past six in the morning, we were more fit to go to bed again than dive into the *adventures* of Cicero by translation. The only way to prevent boys doing such things, is to study more carefully their wants in the way of enjoyment and recreation,

by allowing them plenty of time for that purpose, and by selecting interesting stories for them to read, particularly histories and travels. The old proverb, *quantum sufficit*, would come in here, and the boys when they went to bed would go to sleep. I have not the least doubt but that a similar state of affairs exists in many girls' schools; at least a confession was made to me by one young lady, who stated that she used to read for hours after she was supposed to be asleep. We cannot blame these young people, for they are light and gay and bear no thought for to-morrow, it is their teachers and parents who are to blame, for they, being taught by the experience of years, should be always inculcating into the ears of the young the injury of such practices to their health, at the same time offering additional attractions, in the opposite direction, which are likely to prevent the practices referred to.

If sleep is as needful to the body as food, it necessarily follows that some injury to the health is sure to take place when the body is deprived of it, no matter what the cause

may be. We should in every way try to let children have the required amount of sleep. I know of no better plan to accomplish this than by devoting the hour before retiring to bed to play and frolic. Amusement produces joy and contentment of the brain, while at the same time it also brings about a healthily fatigued feeling, and the child is only too glad to close his eyes as soon as he is comfortably ensconced in bed.

The more frequent cause of sleeplessness among children of all ages is, without doubt, improper feeding. Children when fed on food not suitable, in a digestive sense, to their requirements frequently suffer from indigestion, which produces considerable irritation in the alimentary tract, producing a reflex and disturbed condition of the brain. This is particularly the case with young infants when fed upon starchy and farinaceous foods, for these foods are not acted upon by the saliva on account of the proper ferment not being developed, hence they pass into the intestines as undigested hard lumps, causing spasms. Older children are often given cake and other

improper food just before they go to bed, which produces similar symptoms and consequences.

The next most frequent cause is dentition. When the temporary or milk teeth begin to pierce their way through the hardened gum they cause a certain amount of pain and irritation. This is particularly the case with boys with very hard gums, which by constant pressure of the teeth soon become inflamed, causing a continued lancing, stabbing pain.

No wonder the child cannot sleep under such painful conditions, and the only way it has of calling attention to its sufferings, is by keeping up a continued noise by crying until something is done to relieve the pain. I have constantly seen this relief brought at once by the aid of a sharp lancet quickly drawn across the hardened gum and the flow of blood increased by some warm water. The child has shortly afterwards dropped into a sound sleep and enjoyed that rest so needful after many wakeful nights. It would be out of place here to go more fully into the question of treatment during dentition, so

I will merely advise mothers to consult the family doctor when they believe that dentition is the cause of the child continually crying.

In concluding the article on sleep, I would like to impress upon mothers that it is quite impossible for children to enjoy robust health unless a proper number of hours of undisturbed sleep is enjoyed nightly. It is frequently the sole reason of children being sickly and delicate who from the care and attention bestowed upon them should be strong and healthy.

THE SKIN.

IN discussing the subject of *Feeding and Rearing of Children* the skin must take a very prominent place among those organs of the body that require great care and attention bestowed upon them. The skin is not only the covering of the body, and the great protector of all the internal organs, but it also possesses several very important functions of its own, which play an important part in the maintenance of life. The skin is the first organ of the body to show any signs of malnutrition as the result of improper or insufficient feeding, and this is more particularly the case with children, on account of the great vascularity of the skin during the time *Nature* is carrying on rapid growth. It is from this cause we meet with so many eruptions

and skin diseases among young children, nearly all of which may be prevented by judicious feeding, according to the rules laid down in the various articles I have written on the subject, as well as by careful attention to the various functions of the skin, which we will shortly proceed to explain.

The skin is composed of two layers; one superficial and the other deep. The superficial layer consists of hard round cells, and is called the *cuticle*. These cells are being constantly renewed and the old ones are rubbed off during the process of washing, and also by the friction of the clothes. Nature has even protected these cells by impregnating the surface-layer with a substance called *keratin*—a substance which renders them quite hard and prevents any chemical poisons from penetrating the skin. For example, if a drop of vinegar is dropped on some healthy skin, no pain or sensation of any kind is felt; whereas if the skin gets cut or the surface-cells are rubbed off, a painful sensation is at once experienced. Beneath this superficial layer is another layer known as the true

skin, containing glands which secrete an oily substance and also a large number of small arteries and nerve-endings, hence very sensitive.

It can be easily understood that a substance which possesses glands, arteries, and nerve-endings, must have other functions and uses besides being merely a protector of internal organs, as erroneously supposed by many people. It is in reality a kind of extra lung as it works in a similar manner to the lungs, in that it is continually absorbing oxygen from the air and excreting watery vapour and carbonic acid. We may sum up the functions of the skin as follows:

- a.* Protective.
- b.* Sensitive.
- c.* Secretive.
- d.* Excretive.
- e.* Respiratory.
- f.* A temperature regulator.

The secreting and excreting functions are most important and should be carefully studied. The sweat or perspiratory and seba-

aceous or oil glands, which fulfil and perform these duties, consist of a large number of small tubes embedded in the skin, which if added together would reach many miles in length. The sweat glands help the lungs, kidneys, and liver to remove the deleterious and poisonous matters from the blood in large quantities. They also remove a large quantity of water, whereby the temperature of the body is in a great measure regulated. This accounts for the profuse perspiration during the summer months and the almost imperceptible perspiration during very cold weather. In hot weather more blood is drawn to the surface by the dilatation of the small arteries in the skin, hence the evaporation and cooling effect on the body as a whole, whereas, on the other hand, cold contracts these vessels and makes them much smaller and they consequently hold less blood. The blood, therefore, is not brought to the surface to such a large extent, thus preventing the heat of the body being expended. The respiratory function can be easily illustrated by placing a small looking-

glass to any part of the body and see how soon it will become dimmed, in the same manner, although to a much slighter extent, as if we breathed upon it, thus showing that gaseous exchanges are continually going on in the skin.

The human child being born into the world without any protecting covering, it has to trust entirely to its parents to provide external coverings in order to keep in the heat of its body, or else the heat soon evaporates and the child dies. This is not the case with most warm-blooded animals, for these are usually provided by nature with an external covering, in the shape of hair, to maintain the uniform temperature of the body. Man, however, through the means of his intelligence, is able, by having command over food, clothes, and fuel, to maintain a suitable temperature in the various climates that are to be found throughout the earth's surface. We must, therefore, in order to protect the skin of the young, and keep the body warm, cover it with a suitable covering—a subject I have gone fully into when dealing with the subject of clothing.

Taking for granted that due attention has been paid to the feeding and clothing of the body, there yet remain certain hygienic laws that must be carefully observed, so that the various functions which the skin is called upon to perform may be helped rather than retarded.

We have already pointed out how the functions of the skin relieve the blood of a quantity of waste products which are excreted by the glands of the skin and deposited on its surface. If these products are not continually removed by the aid of soap and water, they block up the pores of the skin and prevent other matter being exuded. It is, therefore, quite essential to wash the skin all over daily to cleanse it from deleterious matter. Young infants ought to be washed daily in water about the temperature of the body, and with soap that contains little or no potash or soda salts. These latter salts only act as an irritant to the skin, which should never be in such a dirty condition as to require them. Super-fatted soaps are by far the best for the skin, as they absorb

the dirt without destroying the cuticle. It is quite a mistake to lather the skin all over, as if you were going to shave the skin, the smallest quantity of soap being quite sufficient when used with soft water. If through any cause the skin is broken or inflamed, no soap should be applied to those parts, a little oatmeal being used instead. After the morning or evening tub a gentle rubbing is beneficial, which can be increased with advantage as the child grows older. A soft flesh brush may take the place of the towel after the age of ten. I am no advocate for the use of very cold water. I cannot myself understand the cry that cold water should be used from the tap all the year round.

It seems to me, for this cry to be consistent, snow or ice water should be used in the summer; whereas, as a matter of fact, these advocates of cold water bathe in water about the temperature of 65° in the summer, and about 40° in the winter. Surely it would be more sensible to reverse the summer and winter temperatures of the water. The shock caused by plunging into water of a tempe-

perature of 40° , *i.e.* 60° below that of the body, is, to say the least, very unscientific. I believe that for very young children the temperature of the bath should be 85° ; and after five years old, it may be reduced to 75° , a temperature quite low enough for all ordinary purposes. Hot-baths, and a modified form of a Turkish bath—have their advantages, when taken occasionally; but these I look upon as medicinal baths, and are only valuable to those whose skins do not naturally act well, or who suffer from defective elimination. As a general rule, if a child's body is washed all over once a day in tepid water, it is sufficient to keep the skin in a healthy state and prevent disease.

A fine delicate healthy-looking skin is not only a very valuable addition to other personal attractions, but is a sure sign of health and vigour. The skin and the hair are always my surest guides whereby to form an opinion as to the health of a child, the former in case of sickness is dry, harsh, and rough, the latter loses all its gloss and also

becomes dry and the ends split. I have gone fully into the subject of the hair in a previous article, because it often causes much trouble and worry to parents which can be prevented by a slight knowledge of its proper management.

CONCLUDING ARTICLE.

IN the series of articles on this important subject I think I have exhausted nearly every prominent point connected with it. The reader who has carefully read and digested the articles will, I fancy, agree with me in coming to the conclusion that the proper feeding and rearing of children is a task not to be undertaken without previous practical experience. In fact, its successful accomplishment requires much tact, learning, and patience. If we include children among animals, for the purpose of argument, we may safely record the fact that no class of animals is so shamefully neglected as children in regard to the care expended upon them when growing up. This neglect is not altogether confined to the poorer classes, whose life is generally

but one long day of misery, which to a certain extent affords an excuse for their shortcomings in their duty to their children, but is more often to be seen among rich and educated parents whose condition in life gives no excuse either for their want of knowledge or lack of interest in this most important subject.

What a contrast there is when the animal happens to be a horse, dog, &c., for then we notice that no amount of time, reading, or interest in the subject is considered superfluous, particularly should the animal be kept for show competition, and there is money to be made by exhibiting it. These various show competitions have their advantages, for they must impress the dietitian and the hygienist, and should also impress parents, with the marvellous results that can be obtained by the judicious feeding of animals, and rearing them under the very best hygienic conditions. I am always delighted with a good horse show, where you can see that splendid animal, the horse, turned out in the very pink of condition, through the aid of human hands

combined with human intellect. I often think the stud groom teaches us a lesson, for if he can send a horse to a show in such splendid form, mainly by means of proper food and care, why cannot we do the same with regard to the human animal, who should be treated, at least, with the same amount of considerate care and attention.

This opens up the question whether the human race can be improved. I certainly think it can by exactly the same means by which enthusiasts bring their 'pets' to such a state of perfection. I believe even more than an improvement could be effected in the physique and health of the human race, by paying a diligent attention to dietary and hygiene. If this was only done there is no doubt but that many hereditary diseases could be checked in their course, which at present help to swell in a great measure our yearly mortality tables. I have in mind three children, who have been entirely brought up under my guidance, with regard to dietary, clothing, exercise, and general hygiene. These children, although the offspring of a weak

mother and none too robust father, are as strong and as healthy to-day as anyone could wish for. They are in the very pink of condition, straight, upright, full of life and spirits, with most amiable dispositions, and have never had any illness. I attribute all these satisfactory results to the care bestowed upon them, otherwise I think they would grow up enfeebled in mind and body.

I often tell a tale which I think will illustrate my meaning. When in the country some years ago I saw a cow being driven along the road in a poor weak condition. I inquired of its owner, a small farmer, whom I knew, what he intended doing with the animal. He said, 'Have it killed, for she is no use and her milk has dried up; I have spent more than her worth on veterinary surgeons,' or something to that effect. I, knowing the filthy state in which the man kept his animals, agreed to buy the cow for a small sum. In three months time I was able to sell her for three times the sum I gave, on account of the large supply of milk she yielded. This improvement in the cow's

condition was simply due to giving her pure water to drink and an ample supply of suitable food, in addition to keeping her in a well-ventilated sanitary shed. I could enumerate many examples, quite as convincing as the above, in the cases of patients who have undergone a course of dietetic treatment under me, particularly when subject to excessive corpulency.

Mothers and nurses, as I have stated in a previous article, often are under the impression that certain children are born with bad tempers, and often attribute continued *peevishness* to the same cause, whereas it is more often due to indigestible food. Indigestible food causes intermittent spasms of the bowels, which are very painful, and make the poor child cry, for he has no other means of letting those around him know that he is suffering, and that he is anxious to draw their attention to his sufferings in order that they may be relieved. I feel sure that if we suffered in a similar manner, we should give vent to our feelings in some such way. I have before related the case in which I found

a child's collar-bone broken, who was deemed by the nurse to have a *wicked temper*. I have no doubt it had been broken for some weeks, although there was no evidence of the time the accident took place. This shows us how careful we ought to be not to attribute to a child's ill-temper what is simply due to some physical ailment.

We may condense the knowledge required for the judicious rearing of children to the following five points, viz. :—

- a.* Food sufficient in quantity and quality.
- b.* Exercise of a suitable nature.
- c.* Clothing of a proper kind.
- d.* Healthy hygienic surroundings.
- e.* Careful cultivation of the brain without excessive strain.

Now, if we carry out into practice all the above subjects in helping Nature during the active growth of the body, Nature will do her share of the work by keeping all the functions of the body in sound working order, and so vigorous will these functions become

that they will be able to ward off the diseases that children usually suffer from, and which render their infantile days a source of misery both to themselves and their parents.

It is beyond the scope of this series of articles to discuss the important question of unwise marriages, with regard to the bringing forth of weak and sickly children, particularly among that class who cannot afford the extra cost and time which debilitated children require during their infantile days. I, however, think that it is a crying shame for young people to be allowed to marry, when the hereditary seeds of such a disease as consumption have already begun to show themselves in the lungs. In the case of a man, he not only endangers the life of a healthy young woman by contagion, but also very probably infects every child that may be the result of the union, who may in their turn be too weakly to prevent the seeds lying latent from germinating, thus causing further sorrow, trouble, and anxiety to all concerned.

It is a difficult matter to interfere with the liberty of the subject in this respect, but the force of public opinion should be so strong

against such imprudent marriages that it would be impossible for young people, except those who were physically and constitutionally strong to contract themselves in the bonds of matrimony.

At present no such public opinion exists. Young people become engaged and afterwards get married without anyone giving them any advice upon the future. I would venture to express an opinion that it is the duty of parents to give their practical experience on such a subject, guided by the advice of the family doctor.

In conclusion, I would recommend the subject of 'Feeding and Rearing Children' to everyone who has the bringing-up of the young, for it is only by a thorough knowledge of the subject that we are enabled to do our duty conscientiously.

As I have already said, this knowledge can only in a great measure be acquired from practical experience, aided by such information as is made public by persons well versed in the subject, through the medium of books and lectures.

SLIGHT AILMENTS.

I FEEL sure all sensible mothers will agree with me that constantly doctoring children is a great mistake, and that when there is anything seriously the matter with them it is far more economical and satisfactory to at once summon medical aid. Parents, however, ought to be more careful in selecting a doctor for their children. In the first place it is unkind to children to employ a doctor whom they have a dread of, and look upon as a bogie-man. Children have very laudable instincts in respect to people they like and dislike, and I must confess that I think they are very good judges of human nature. When children want to see the doctor and all rush out to welcome him, that is the man to put your children under. It shows he is fond

of children, and will not put them to any unnecessary suffering, and will be sure to be well up in that branch that requires even more study and practical experience than any other branch of medicine.*

There are, however, a large number of minor ailments that are sure to occur in a family of children, which the mother or nurse can attend to with a little knowledge without medical assistance.

Every well-regulated nursery should have a supply of the following articles, kept in a suitable cupboard or box, close at hand and ready for use.

- a.* Sticking-plaster.
- b.* Lint.
- c.* Cotton-wool.
- d.* Bandages.
- e.* A small sponge.
- f.* Some desinfectant.
- g.* Some saline medicine.
- h.* Gregory's powder.
- i.* Sal-volatile.

* Dr. Barrett Roué in a sensible paper read before the British Medical Association stated he thought the study of Children's diseases is much neglected in the medical curriculum.

-
- j.* Friar's Balsam.
 - k.* Eau-de-Cologne or Florida-Water.
 - l.* Strong smelling-salts.
 - m.* Hazeline.
 - n.* A syringe.
 - o.* Clinical Thermometer.

If these articles are not at hand much confusion and perhaps precious time is wasted in sending for them.

The following list of ailments, I believe, includes all that may occur in an ordinary nursery.

- a.* Bleeding from the nose.
- b.* Bites and stings of insects, flies, gnats, mosquitoes, wasps.
- c.* Burns and scalds.
- d.* Colds and chills.
- e.* Convulsions.
- f.* Cuts and bruises.
- g.* Debility.
- h.* Dirt and gravel in the eye.
- i.* Discharges.
- j.* Drowning.
- k.* Epileptic fits.
- l.* Fainting fits.

m. Falls, concussion.

n. Rashes.

o. Ringworm.

p. Teething.

q. Thrush.

r. Worms.

BLEEDING FROM THE NOSE. It is rather a common complaint among children, although if it is of frequent occurrence a doctor should be consulted about it. Let the child stand up against a wall, bathe the forehead and nose with cold water, then inject, with a syringe, some Hazeline (a teaspoonful to four tablespoonfuls of water) or vinegar made about the same strength; afterwards plug the nose with cotton-wool. It is advisable after the bleeding has stopped to make the child lie quietly for some hours, and, as a prophylactic, to give it a teaspoonful of Hazeline in a tablespoonful of water three times a day for a week. Hazeline is also the safest remedy for all internal hæmorrhages.

BITES AND STINGS are often very dangerous through shock, especially in warm weather and tropical climates. The stings of wasps

and mosquitoes have been known to have caused the death of children. All bites and stings should be at once attended to. They should be first washed with water (hot, if at hand) then well sucked, and a solution of strong ammonia, or ordinary petroleum oil, applied on a piece of lint. It is as well for the nurse, during the summer months, to carry a small bottle of ammonia and some lint with her. As a precaution give the child a strong dose of saline medicine the following morning. In case of wasps stinging a child in more than one place, also in case of adder bites, it is better to take the child home at once for medical treatment, after applying the remedies advised. A dose of hot milk with two teaspoonfuls of brandy is advisable to allay the child's nervous fright.

BURNS AND SCALDS. It frequently happens that the nurse or mother is called upon to attend suddenly to a burn or scald through the indiscretion of children, which foolishness is usually brought about by carelessness on the part of those who have the charge of them. Fire and boiling water should be

safeguarded that the children cannot get at them. The best treatment if the skin is not destroyed is to apply lint soaked in a strong solution of carbonate of soda. If the skin is destroyed fine wadding soaked in a mixture of lime-water and oil should be applied. All the clothes must be cut away. The shock caused by burns and scalds is often very severe and must be treated by rest and stimulants. Surgical aid should be obtained as soon as possible in all cases of extensive burns or scalds.

COLDS AND CHILLS are the most troublesome complaints children suffer from, more especially in our changeable climate, much, however, can be done to prevent *colds* as I have already stated in the article on *Clothing*. Mothers should never look upon a cold or chill lightly, for it may be the precursor of a serious illness, such as rheumatic fever, inflammation of the lungs, heart, or kidney, etc. Whenever the symptoms of a chill are recognised, viz.: shivering, running of the nose, headache and a hot skin, the child should be put to bed, a warm bottle applied

to the feet, and hot milk and water given it to drink. A dose of the following mixture may be given every three hours. Salicylate of Soda 5 grs., Liq. Ammonia Acetatis 20 drops, Syrup of Squills, a teaspoonful in a tablespoonful of water. This, with a dose of saline in the morning, should stop a cold, and a day's rest in bed, make the little cherub fit for play the following day. If unfortunately these means are not sufficient and there is any difficulty in breathing, medical advice should be summoned, for the old proverb of "a stitch in time" etc., is certainly true when applied to colds.

CONVULSIONS. Children frequently suffer from convulsions when teething, the gums being too hard for the teeth to penetrate them, which causes irritation of the nerves and reflex action. During the teething period children's gums should be continually examined, and if found inflamed they should be lanced, the more blood coming away the greater the relief. Convulsions may also be due to worms in the bowels, which act in a similar manner by irritation, also to lumps of hardened

undigested food in the bowels. The best treatment during the fit is to place the child in a hot bath, then apply mustard leaves to the soles of the feet for ten minutes; when the child comes to, it is always well to clear out the contents of the intestines by a dose of Gregory powder. Medical advice should be obtained, in order that the proper diagnosis of the cause of convulsions may be made and suitable treatment prescribed to prevent a repetition of it. Convulsions are frequently the precursor of fevers and inflammation of various organs.

CUTS AND BRUISES. Children are always liable to these when playing about. If there is much bright blood it shows a small artery is cut or lacerated; tie a silk handkerchief above the wound. If the colour of the blood is dark, of a bluish tint, it shows it comes from a vein, then tie the handkerchief below the wound. Bathe the wound first with a sponge soaked in tepid water, then wash it with a solution of Izal (a tablespoonful to half-a-pint). Dry the wound, press it together and carefully put strips of sticking plaster across it and

cover the whole with a bandage. Should the hæmorrhage not stop readily by these means, it is better to send for a surgeon at once.

Bruises, when the flesh is not lacerated, are best treated by soaking a pad of lint in eau-de-cologne and keeping the pad in position by a bandage. If the bruise is a severe one it is better to let the child lie down, and give it a saline mixture at night.

DEBILITY. Children frequently suffer from Debility after fever, colds, and during the hot summer months. Of course the family doctor will advise the proper treatment for debility after fever or any other disease, but when due to the after effects of a cold, hot weather, or other simple causes I believe in *overfeeding* the child instead of giving it tonics or other medicine. I would advice that Kepler's Solution of Cod-liver oil in Extract of malt and Bovinine, a raw meat juice, be added to the dietary. A teaspoonful of Kepler's Solution may be given twice a day after meals, and ten drops of Bovinine in a little cold milk twice a day between meals. This extra nourishment added to the child's ordinary diet is

nearly always sufficient to cure any debility, particularly with a change of air to a place where outdoor exercise in the sun can be obtained.

DIRT AND GRAVEL IN THE EYE. These frequently produce severe inflammation of the eye, and cause the child very severe and lasting pain. The eye should be well syringed from the outer corner with cold water and kept shut by a bandage.

DISCHARGES. Children should not suffer from discharges of any kind, it shows the mucous membrane is either inflamed or diseased. After fever and other debilitating illnesses, children often suffer from discharges from the mouth, nose, and ears. These should be attended to with vigour. Sores about the throat, tongue, and mouth may be treated by a gargle of Condyl's fluid, or one of medical Izal (a teaspoonful to a pint of water). It is also well to give the child two drops of Izal in two tablespoonfuls of milk twice daily. This treatment is especially wise when there is diphtheria or many sore throats in the neighbourhood. When the discharge is from

the nose or ear, syringe it with a solution of IZAL, first of all with warm water, to clear away the discharge. It is always unwise and dangerous to keep a piece of wool in a child's ear as it prevents the free escape of the discharge, but instead of it a piece of wool, kept in position by a bandage may be applied to the outside of the ear. I would also advise that the child be medically examined, in order that the cause may be found out, particularly when the discharge comes from the ear. (Vide Debility.)

DROWNING. When such an awful catastrophe as this occurs the treatment must be prompt and decisive. The child should be held up by the legs to allow any water that may have got into the lungs and trachea to run out. If the child is unconscious Sylvester's method of performing artificial respiration should be at once employed; it consists of first clearing the mouth of dirt and saliva, pulling the tongue well forward, lying the patient on his back with the head and shoulders slightly raised; then stand behind the child, grasp his arms just above the elbows and draw them

steadily and gently upwards till they meet above the head. (This action raises the ribs and produces inspiration.) Bring the arms sharply down to the side of the ribs so as to compress them gently in order to produce expiration. Continue these movements about sixteen times a minute until the child is restored or the case is hopeless. If, however, the child is conscious, it is better to at once take him to the nearest house, undress him and put him into a warm bath, rub him down well, give him a drink of hot milk with a teaspoonful of brandy, then quickly put him to bed. The great danger from a child falling into the water is allowing his wet clothes to remain next to the skin. They extract all the heat from the body which chills the blood and produces rheumatic fever and inflammation of various organs. When the clothes are immediately taken off and the body well rubbed, there is very little danger. I once witnessed such an accident in St. James's Park. The mother said, when advised as above, that she could not undress the child before all the people.

EPILEPTIC FITS are always greatly to be

dreaded in children, for they often foretell that the child is going to be an epileptic. The science of medicine unfortunately has not found out the true cause of this dreadful disease. Parents should never attempt to treat it themselves but at once place the child under medical care.

The symptoms of an epileptic fit are a stifled cry, a sudden loss of consciousness, the teeth are clenched, froth coming out of the mouth, and the whole body convulsed. The tongue may get bitten by the spasmodic action of the teeth. In order to minimize these symptoms lay the child on the floor away from the furniture, and gently but firmly hold it down, loosen the dress around the neck and insert a piece of thick india-rubber between the teeth, and gently bathe the head and forehead with Florida water. After the attack is over there is always a tendency to sleep, which should be encouraged. No more ought to be done until the doctor arrives.

FALLS which produce stunning or concussion are more or less dangerous according to the concussion produced by the fall. The

dangerous symptoms are faintness, pallor, and loss of consciousness. The little patient should be put to bed, cloths, soaked in vinegar and water and then wrung out, applied to the head and a hot-water-bottle to the feet. As soon as the child is able to swallow, a dose of strong saline medicine should be given. If there is complete loss of consciousness the family practitioner ought to be sent for at once, as it points to apoplexy or some lesion of the brain. Children are often certainly able to withstand without any injury the most violent falls.

FAINING FITS. The treatment of these is simple; first open the window and door to get a free current of fresh air through the room. Lie the child on a hard couch or on the floor with the head lower than the body. Loosen all the clothes about the neck and chest. Bathe the forehead and chest with *eau-de-cologne* and water, and place a bottle of smelling salts a little distance from the nose. When the child comes to give it a teaspoonful of sal-volatile in half-a-wineglassful of water, then let the child have a good

sleep, but do not allow it to play again that day. Children ought not to faint, so the cause should be found out and avoided in the future.

RASHES. I think it would be only waste of time to describe the various rashes distinctive of eruptive fevers in this work. Physicians after many years' experience often make wrong diagnoses, so it is impossible for mothers to be able to diagnose a rash from a written description. I will only say that rashes on children's bodies are quite abnormal, and if there is fever as well as a rash no time should be lost in getting the opinion of the family doctor. The child should be kept in bed and a saline mixture given to it at once, and the diet must be reduced to milk and water and real calf's-foot jelly. If the rash is only nettle rash or some rash due to the blood being out of order, this treatment will be sufficient to remove it by the following morning, or at all events to lessen the rash.

I may here remark, that in the case of vaccination great care should be exercised to prevent the arm being rubbed, or the child

getting a chill. It is always advisable to feed the child very carefully during the period the arm is inflamed and give it a dose of Gregory powder on the fourth and eighth day after vaccination. When the operation is carefully performed, with good lymph, and the above advice is strictly followed out there is no risk in vaccination.

RINGWORM. When children go to school and mix with other children they are liable to catch ringworm which may prove a most obstinate disease and require all the ingenuity of the physician to get rid of. It should be attacked without any delay when recognized. The eggs are easily transplanted through towels, brushes, hats, caps, and personal contact. It attacks the roots of the hairs, making them split and break and giving the hair in the region of the ringworm a dirty, stubbly appearance. When it attacks the clear skin it presents a decided reddish ring which has a scurfy appearance. Cut the hair close to the scalp and paint the surface with Tincture of Iodine daily for three days; if on the skin paint the red ring. A solution of corrosive

sublimate (1 to 1000) is also a good local remedy, as well as Nitrate of silver. The last two remedies are dangerous and should only be applied by a skilled hand.

TEETHING. This period of a child's life is none too enjoyable if we can judge by the cries it utters. Much, as I have already said, can be done to prevent the pain from becoming acute. The gums should be daily examined, and if inflamed warmth applied to them, and when hard, red, and painful the aid of the lancet must be sought. The bowels should be kept well opened and the family doctor will prescribe a sedative in the form of bromide of ammonia and syrup to procure undisturbed sleep. Much can be done to prevent the gums getting swollen and inflamed, whereas after such is the case it is more difficult to give relief. Careful dietary is essential during teething. (Vide articles on Teeth.)

THRUSH is often a very troublesome complaint in infants. It is a species of mould, and fixes on to any inflamed mucous surface. Feeble, badly-nourished children, fed on

impure milk, through dirty tubes attached to dirty bottles suffer most. The first thing to do in the treatment of thrush is to see to the food and milk supply, and the apparatus used in feeding, and make these above suspicion. Examine the mouth carefully and wipe off all the white specks with a camel's hair brush, then paint the parts with borax of glycerine (a teaspoonful to the ounce). If it does not yield to this treatment a doctor may apply a strong solution of Nitrate of Silver, which the author has found most effectual. The mouth had better be sponged daily with a solution of borax and glycerine for some time to prevent a return of the disease.

WORMS may trouble children of all grades of life. They are due to eating vegetables not properly washed, and drinking impure water containing their eggs, or in the case of the tapeworm it may be caught by playing with a dog. The common kind of worms found in the intestines of children are, tapeworm, roundworms, and threadworms. Roundworms, are like the common earthworm. They are best removed by giving two grains of

santonin with a little white sugar every night for four nights and a dose of saline medicine in the morning. Threadworms are like white pieces of cotton. They breed in the human body. An injection composed of a teaspoonful of common salt to half-a-pint of water, injected tepid, every other morning for a week will kill them. An infusion of quassia wood is also an excellent injection for the same purpose. When a tapeworm is suspected, consult the family doctor. After children have suffered from worms, change their diet and carefully boil and filter the water. Do not irritate the bowels by continually giving worm powder or cakes.

The list of articles I have given to be always kept in stock mostly explain their own use, for example, lint, bandages, plaster, etc ; and it is the drugs that require some further directions.

DISINFECTANTS. It is quite necessary always to have a supply of a disinfectant where children are, which should be used very freely during the hot weather and whenever

there is any illness about. I have advised Izal on account of the many domestic qualities that recommend it, viz.: it is non-poisonous and perfectly harmless to human beings, it has no corrosive or caustic properties but at the same time it is a very powerful antiseptic and germ destroyer. The medical preparation is useful as an antiseptic lotion for foul discharges from the nose, ear, etc. In cases of bronchitis, diphtheria, and sore throats a teaspoonful in half-a-pint of water gently heated makes a soothing and useful inhalation.

SALINE APERIENT MEDICINE is often required for children. The *old white mixture* made of Epsom Salts, Carbonate of Magnesia, and Peppermint water is very useful. *Condal* water is a safe natural mineral water, it is very rich in Sulphate of Soda and is more palatable than most mineral waters. The doses are fully given on each bottle. Fluid Magnesia is a very safe saline medicine for very young children.

GREGORY POWDER is a good safe household medicine. It is composed of Rhubarb, Magnesia, and Ginger; when taken in hot milk

and quickly swallowed it is not very unpleasant. Messrs. Burroughs Wellcome and Co. make a useful tabloid containing 5 grs of the powder. It has only to be broken up and dissolved. One tabloid is a dose for a child of three years.

SAL-VOLATILE is the best preparation of ammonia to keep ready for use. It is a very safe stimulant and anti-spasmodic, and useful in flatulency. A teaspoonful in water may be given to a child of six. It should be kept in a glass-stoppered bottle.

FRIAR'S BALSAM or Tincture Benzoin Co. is a useful remedy to paint over cuts. A teaspoonful in four tablespoonfuls of water gently heated makes a useful inhalation for colds or may be used as a gargle.

EAU-DE-COLOGNE or FLORIDA WATER make very pleasant evaporating lotions, and are useful in cases where you require to render the part cool, for example in fainting, blows, falls, etc.

SMELLING SALTS should be strong and kept in a well-stoppered bottle, they are useful when we want to bring about a reflex action and may be used in most forms of headache.

Always be careful to gradually bring the bottle to the nose, for if you bring it suddenly a strong inspiration will produce a violent fit of coughing, through too strong a dose being inhaled, and may do injury.

HAZELINE is a volatile substance distilled from the Witch Hazel. It is useful for all hæmorrhages and may be injected into the various passages or given internally in teaspoonful doses for a child of six years. It is also useful when applied to burns, bruises, sprains, and strains, and as a wash for tender gums and foul mouths.

SYRINGES. It is better to keep $\frac{1}{2}$ oz and 1oz glass syringes and also a pewter one. They should be washed in a disinfectant solution after use. Syringes are very useful to apply medicaments to the different passages and to wash out wounds and sores.

CLINICAL THERMOMETER. I think it always well to have one in the house, for with a clinical thermometer a parent can often set her mind at rest. The temperature should be taken at night under the tongue, the thermometer remaining in the mouth two

minutes. The normal temperature is 98° — 99° . Any point above 100° should be looked upon with suspicion, especially if there is a rash. A slight febrile cold will often raise the temperature to 100° in children.

DOSES. In all works intended for the lay public the doses of medicine named should be very carefully given, as much injury may be done by giving too large a dose of any medicine. That is the reason why the skilled physician may often bring about a cure through knowing what dose to give a child of a certain age, whereas perhaps the child has had the same medicine repeatedly before but not in the proper doses. Dosing is that branch of medical science that the newly-qualified medical man finds so difficult to learn.

I have, when recommending a drug in this work, given the dose for a child of six years. The dose for a child of three should be half that for a child of six, and for a child of twelve add half as much again.

THE END.

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